THE RAILWAY GAZETTE

A Journal of Management, Engineering and Operation

INCORPORATING

The Railway Engineer · TRANSPORT · The Railway News

The Railway Times · Herapath's Railway Journal · THE RAILWAY RECORD.

RAILWAYS ILLUSTRATED · ESTABLISHED 1835 · THE RAILWAY OFFICIAL GAZETTE

PUBLISHED EVERY FRIDAY
AT
33, TOTHILL STREET, WESTMINSTER, LONDON, S.W.1

Telegraphic Address: "TRAZETTE PARL., LONDON"
Telephone No.: WHITEHALL 9233 (8 lines)

Annual subscription payable in advance and postage free
British Isles and Abroad .....£2 5s. 0d.
Single Copies .....One Shilling
Registered at the General Post Office, London, as a Newspaper

VOL. 81 No. 4 FRIDAY, JULY 28, 1944

CONTENTS

	PAGE
Editorial Notes	77
Control of Industry	79
Civilian Evacuation from London	79
Wartime Finance of British and U.S. Railways	80
Steam and Diesel-Electric Locomotives for Shunting	81
Letters to the Editor	82
The Scrap Heap	83
Overseas Railway Affairs	84
Railway Wagon Maintenance	85
Narrow-Gauge 4-8-0 Locomotives for Sierra Leone	86
Cropping Battered Rail-Ends in the Track	88
Electric Butt Welding Plant at Doncaster Works, L.N.E.R.	89
Personal	91
Transport Services and the War	93

DIESEL RAILWAY TRACTION SUPPLEMENT

The August issue of THE RAILWAY GAZETTE *Supplement, illustrating and describing developments in Diesel Railway Traction, will be ready on August 1, price 1s.*

GOODS FOR EXPORT

The fact that goods made of raw materials in short supply owing to war conditions are advertised in this paper should not be taken as indicating that they are available for export

NOTICE TO SUBSCRIBERS

Consequent on the paper rationing, new subscribers cannot be accepted until further notice. Any applications will be put on a waiting list and will be dealt with in rotation in replacement of subscribers who do not renew their subscriptions

POSTING "THE RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE *possesses the necessary permit and facilities for such dispatch.*

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas

TO CALLERS AND TELEPHONERS

Until further notice our office hours are :
Mondays to Fridays 9.30 a.m. till 5.30 p.m.
The office is closed on Saturdays

ANSWERS TO ENQUIRIES

By reason of staff shortage due to enlistment, we regret that it is no longer possible for us to answer enquiries involving research, or to supply dates when articles appeared in back numbers, either by telephone or by letter

ERRORS, PAPER, AND PRINTING

Owing to shortage of staff and altered printing arrangements due to the war, and less time available for proof reading, we ask our readers' indulgence for typographical and other errors they may observe from time to time, also for poorer paper and printing compared with pre-war standards

Railways and Employment

IN normal times railway purchases of stores and materials of all kinds totalled about £60,000,000 a year, and in 1938 the book value of the stores and materials for the four main-line railways was £22,000,000. In a recent note in the City Columns of *The Times*, referring to the Government White Paper on employment policy, it was pointed out that it might be that the railways, in the interests of stabilising the general flow of expenditure, could vary within limits the volume of their orders for certain stores according to the general state of trade. The happy mean between too much and too little would not be found easily. In practice, it was believed that the railways hold on the average three or four months' supply of stores. From the point of view of sustaining employment in the industries supplying the stores, it is not so much the absolute level of stocks as the timing of replacement orders which matters most. Fluctuations in purchases of stores have not been violent. Moreover, the book value of stocks of stores and materials includes large sums in respect of the railways' own manufactures or partial manufactures, such as sleepers, for which allowance has to be made.

Careful Diagnosis Required

The skill with which private enterprise can apply the new techniques outlined in the White Paper, will depend very largely on more complete, more prompt, and more exact information as to current economic movements. Railway experience provides an effective illustration of this. In August, 1937, the Railway Staff National Tribunal gave a decision on claims which had been made for increased wages and other concessions amounting to £4,500,000 a year. The merits of the claims are beside the point in this connection, but it is pertinent that in making its award the Tribunal relied on indications that the net revenue of the railways would increase by over £5,000,000, whereas there was in fact a decline in 1938 of nearly £9,000,000. Under the White Paper proposals the Government would establish a central staff to measure and analyse economic trends and this may be helpful. Meanwhile the assurance of the Chancellor of the Exchequer that the provision of opportunities of employment is not to be made at the expense of efficiency, is valuable. Sir John Anderson said that all experience shows that unless the public service is conducted with a view to efficiency and discarded other considerations, trouble would quickly arise, "and in the field of industry, especially if it were in any way competitive industry, these considerations would have at least as much weight as in regard to the general Civil Service,"

Home Railway Stock Prices

Holders of British railway stocks are often disappointed at the relatively low prices at which these securities stand, in comparison with the generality of industrial shares. The yield on home railway junior stocks is nearer to 8 per cent. than the 4 per cent. which nowadays is considered satisfactory on first class industrials. For the duration of hostilities, and a minimum period of one year thereafter, home railway stocks have the doubtful benefit of a Government guarantee of net revenue—the effect of which at the present time is to reduce by more than half the amount of net revenue which otherwise would be available to stockholders. Other Government guaranteed stocks at the present time yield about 2½ to 3 per cent., and the status of railway stocks, therefore, seems a little strange from whichever viewpoint they are studied. At the present time, dividends on the stocks are not in doubt for the duration of control, and those payments which were announced this week are a fair indication of the level of return which will prevail during control. What is in doubt is the political future of the railways, and it is lack of confidence in this matter which reacts adversely on the capital value of railway stocks.

Probable Fluctuations

There can be no doubt that if the future of the railways after control was assured under the present system of management and control, there would be a strong upward movement in stock prices, to bring the yields more into line with those of other first class industrial investments. Even on the present basis of dividends this would mean that quotations in a number of cases would be doubled, and on the basis of net revenues of anything approaching the present magnitude being retainable by the companies, the advance in stocks would be so fantastic as to be better imagined than estimated. As the time approaches at which a decision will have to be made as to the future of the railways, it is probable that stocks will again become the sport of rumour and fluctuate according to guesses and forecasts of the Government's intention. Stockholders must be prepared to see their holdings depressed by reports of impending

Government confiscation, and raised by hopes of a "square deal" for the lines. The investor who is satisfied with his present yields may find this disturbing; the speculator, no doubt, will rejoice in the creation of a gambling counter; members of the Socialist Party, who deplore speculation in securities, may reflect that the clamour of their own Party for State control, in large part, is responsible for wild movements in the stocks; and the Government must bear its share of blame for having left the industry and the proprietors in the dark as to its intentions.

Rail Electrification and Operating Expenditure

The recent prominence which has been given to the pros and cons of railway electrification—an editorial article giving the gist of the arguments, was published in our last week's issue—has brought forth an interesting letter in *The Financial Times*. Mr. Richardson, of Newcastle-upon-Tyne, in that letter submits a table showing (*a*) the ratio of operating expenditure to operating receipts, and (*b*) the ratio of total expenditure and interest charges to gross receipts for those European railways which have carried the policy of main-line electrification to its logical conclusion. The figures relate to 1936 and 1937, the last he could obtain before the war, and are as follow :—

Railway	(*a*)	(*b*)	Percentage of route electrified
Austrian Federal	105	117	15
France (Midi)	92	146	37
Italian State	108	131	15
Swedish State	84	102	26
Swiss Federal	74	113	74

Corresponding figures given by Mr. Richardson for the four main-line British railways are 80 and 100 for the three undertakings (the G.W.R., L.M.S.R., and L.N.E.R.), having a negligible percentage of route converted to electric traction, and 79 and 100 for the Southern Railway, which had about 20 per cent. of its route mileage electrified.

Evidence Not Conclusive

The conclusion which is drawn by the writer of the letter is that it is fortunate for the already unfortunate British railway stockholders that advice to follow the example of railway undertakings, cited in the previous note, so far has not been adopted, and that if taxpayers were substituted for stockholders the same would apply to State-owned undertakings. On the other hand, it is by no means clear from the figures cited that electrification is the cause of the less favourable financial showing, and, in any event, conditions in this country are not on all fours with those on the Continent. It is significant, too, that the railways Mr. Richardson quotes, are all State-owned. As was pointed out in our editorial article last week, there is a *prima facie* case for main-line, and an extension of suburban, electrification, but it is very difficult indeed to obtain the true financial results of electrification schemes anywhere in the world. What is needed in Great Britain is a settled policy for transport after the war that will enable each type of transport to play its part, then an investigation into the advisability of a general scheme of railway electrification. Only then will it be possible to weigh all the facts. The issue cannot be pre-judged.

Argentine Railways' Future

The British-owned railways in Argentina again have been in the news recently. As reported in our last week's issue, the Government stated that it is well aware of the importance of the financial interests involved which, in general, can count on full support from the Government. That rather cautious statement does not go far to assist the misfortunes of the British-owned railways. Some loose speaking by Mr. Aneurin Bevan in the House of Commons brought forth a letter in *The Times* from Sir Montague Eddy. Mr. Bevan spoke of an organisation speaking for the directors which had protested at higher rates in the Argentine being used to give higher wages to railway workers, and had said that higher dividends should be paid. Sir Montague Eddy declared that he knew nothing of the organisation, or its protest, but far from there being any question of paying higher dividends, no ordinary dividend had been paid for 13 years or any preference dividend for 6 years, although during that time labour conditions had improved considerably. Mr. J. A. Goudge, at a meeting of debenture holders of the Buenos Ayres & Pacific Railway Company on July 16, struck a gloomy note when he said there had been a marked change of attitude by the authorities in Argentina, and he thought that the railway share of increased prosperity in the country would be disappointing. Foreign-owned railways had suffered from a succession of Governmental decrees tending to affect seriously their revenue, extending official control, and detracting from the efficient working of the undertakings.

Heavy Loads on the 2-ft. 6-in. Gauge

As recently as July 7 we drew attention to the enormously increased tonnages which are being handled by the Sierra Leone Government Railway as a result of war conditions, particularly the enemy occupation of many other territories producing tropical products. The greatly increased rate of wear and tear has imposed a severe strain on the equipment of the railway administration, and some indication of the way in which the task has been tackled was given last April to a party of the leading citizens of Freetown. Although, as we then pointed out, the new locomotives that could be supplied from Great Britain were built to a standard specification which did not meet all local needs, such units have, nevertheless, been acquired in substantial numbers to assist in handling the increased freight traffic. This week we are enabled to describe and illustrate the type that has been obtained, namely, a powerful 4-8-0 non-superheated locomotive conforming to the maximum axle load of 5 tons which is necessitated by the light 30-lb. rails. There are 20 of these, of which ten have been built by W. G. Bagnall Limited, of Stafford, and ten by Andrew Barclay, Sons & Co. Ltd., of Kilmarnock. Both the locomotives and their 8-wheel tenders were dismantled and packed for shipment to Africa. Our article (pages 86-7) also includes a scale map of the Sierra Leone Government Railway, and gives some indication of the working conditions and limitations of this 2-ft. 6-in. gauge single-track system, which was built at a time when heavy traffics could not be envisaged.

The Railways of Spain

The Spanish railway system now totals a route length of some 10,565 miles, of which 7,725 miles are broad gauge (5 ft. 6 in.) and 2,840 miles narrow gauge (mainly metre). All the broad-gauge railways were nationalised on February 1, 1941, and now constitute the Red Nacional de los Ferrocarriles Españoles, or Spanish National Railways, which are stated to own 70,870 goods wagons. Orders for some 2,000 wagons are in hand with various works of the Spanish railway industry, and 120 wagons have been delivered in the course of the past few months. Orders for 750 locomotives were placed with a number of Spanish locomotive works during 1943, and of these 128 are said to have been delivered. The electrification of the 32-mile section between Madrid (Northern Station) and El Escorial was completed in the summer of last year, and of the El Escorial—Avila section (39 miles) towards the end of the year. These are sections of the Madrid—Irun main line. Power is supplied to the electrified line from existing fuel-fed power stations, but two hydro-electric plants are said to be under construction in the region to the south of Avila, to the south and south-west of the Sierras de Gredos mountain range, on the River Tietar (which flows into the Tajo to the south of Placencia), and one on the River Alagon (joining the Tajo to the north-west of Arroyo de Malpartida); both these places are on the Madrid—Marvao—Lisbon main line.

Military Personnel on the Railways

In the daily press recently there has been a number of reports and illustrations of Service personnel being used to assist in the running of the railways, particularly in the capacity of locomotive firemen. Although the railway companies are grateful to the Service Departments for the assistance they have afforded, there are many difficulties inherent in giving effect to an arrangement of this kind. We understand that the railway unions were reluctant to agree to the proposal and the suspicion has been expressed that Service personnel are being trained as firemen so that they might be available should their services be required during a strike. Such a suggestion is, of course, entirely without foundation. In many quarters surprise has been expressed at the apparent failure of the Minister of War Transport sufficiently to impress on the Minister of Labour the vital importance of providing adequate civilian manpower for securing the efficient operation of the railways under the tremendous load they are now carrying. This applies not only to operating staff but also to workshop and repairing staff, as to which we understand that continual representations have been made by the railways, but without much effect. In view of the importance of the railway effort to the successful prosecution of the war, it is obviously desirable that the railways should receive every possible assistance in meeting essential requirements.

The Value of the Soviet Railwayman

In most of the belligerent countries tribute is paid from time to time to the essential work of the railwaymen in connection with the war effort, but we feel that in some countries many persons are far from appreciating that the importance of the maintenance of railway communication is on the same high level

as that of the actual fighting lines. This is certainly not the case in Russia, where the achievements of the Soviet Railways have been observed and admired very widely, and we are told that the Soviet people call their railwaymen "Brothers of the gallant Red Army." The Press Department of the Soviet Embassy in London has taken some trouble to secure authentic details of initiative on the part of railway workers in advising new methods of work, and making valuable proposals, and some of these were described recently in our columns. From the same source we have now obtained a more general picture by Engineer A. Alterman, of the U.S.S.R. Railways (see page 94), which is of topical interest in view of the magnificent and successful drives of the Red Army on so many fronts. Those who were inclined to doubt that the Soviet Railways could stand the pace have been confounded by the hard fact that the Red Army has advanced across vast territories and still appears to be possessed of sufficient ammunition to put up enormous barrages, and sufficient food to fight with fierce enthusiasm. This, of course, denotes effective lines of military communication, and the sequel is equally interesting when we are informed that almost all the railways in the liberated regions are now open for public traffic.

■■■■

The Control of Industry

"*IF the special disabilities of the railways in regard to charges were removed, it* [the present regulative machinery] *would, I think, prove to be a good instrument for the regulation of the industry by Parliament through the* [Railway Rates] *Tribunal, without undue interference of the executive Government in the technical problems of management and finance, and without curtailment of the free enterprise, with its research and experiment, on which full employment and the development of productive capacity of Great Britain so largely depend. It is an example well worth studying.*"

The foregoing is the conclusion reached by Sir William Wood, President of the London Midland & Scottish Railway, in the course of an article on "The Control of Industry" in *The Sunday Times* last weekend. In it he stated that one of the most important observations on post-war conditions of industry had been made by Sir John Anderson, during the debate on Employment Policy in the House of Commons. Using transport as an example, the Chancellor of the Exchequer had said that its management would have a duty to "provide an efficient service for the public at a reasonable cost," and, returning to the wider aspects of the problem, had observed that he felt that we had to develop a technique which, in regard to industry, whether privately or publicly owned, would enable influence to be exercised and directions to be given, within limits, which would conduce to the maintenance of a high level of employment."

Sir William Wood in *The Sunday Times* explains the regulative techniques applied to the railway industry, particularly since the passing of the Railways Act, 1921, and deals with the main requirements of that Act "to ensure the maximum development and extension in the public interest" of carriage of merchandise and passengers by railway. After dealing with the specific control exercised by the Railway Rates Tribunal, and the pains which have been taken by that body to ensure the fulfilment of its remit, Sir William Wood points out that the annual accounts of the four companies are not only in the great detail required by Parliament, but the manner of compilation is settled by the regulations made under the Railways Act. In addition, elaborate monthly statistics are supplied to the Ministry of Transport and, in normal times, there is an annual Government paper which brings the accounts and statistics of all British railways together, with a variety of deduced statistics and special returns.

During the war the annual reviews by the Railway Rates Tribunal have been suspended, but there can be no doubt that the court performed a public service in discharging its task. On numerous occasions the railways have been required to explain and defend in detail various aspects of policy; the last occasion was in the Spring of 1939, when a detailed analysis was given of railway practice and results over the previous ten years. By these means, the tests of publicity and measurement have been directed closely to the economy and efficiency of railway working, and everyone who wishes has been able to see how the machine has functioned.

All the proceedings of the Tribunal are held in open court, and an annual report is made to the Minister of Transport, which is laid before Parliament. No other organisation in the country has yet faced similar tests. The railway companies do not object to this machinery; on the contrary they have welcomed the opportunity to explain how the obligations placed on them have been discharged in the public interest and to hear and discuss criticisms. Sir William also explains the standard revenue provisions of the 1921 Act, and points out that the Railway Rates Tribunal is responsible for the regulation of the charges made to the public; anyone who wishes to ask for a lower rate than the standard can make an application to the Tribunal and it is examined. The general level of charges, as distinct from particular charges, is necessarily linked at the annual reviews with the other matters which have to be taken into consideration. Sir William Wood points out that he does not wish to give the impression that this regulative machinery has been fully successful. In the special circumstances of the ten years before the war, the return on the capital of the railway companies was well below the "standard," and the scheme, therefore, did not operate fully; during the war, when it could have operated fully, the machinery was suspended. Sir William Wood then concludes with the words which appear in italics above.

■■■■

Civilian Evacuation from London

EVACUATION, with all its attendant discomforts and disturbances to family life, probably has been one of the most trying experiences of civilians in wartime. Few Londoners will readily forget the evacuation which took place in the autumn of 1940 under the threat of heavy enemy air attack. With the increase in our air power and the rapid improvement in our defensive measures, however, the risk of enemy bombing had been reduced steadily since 1941, until for the last few months it had appeared almost negligible. With this fact in mind, coupled with the widespread successes which were attending the Allied armies, the majority of the evacuees from London and Southern England had returned to their homes. The sudden re-commencement on June 16 of hostile air attack on the metropolis and southern counties by means of flying bombs was a sharp reminder of the hazards of war, which again brought the question of evacuation to the fore. For a few days after the commencement of the attacks the evacuation of civilians was purely unofficial, but when the scale and probable extent of this new method of attack were appreciated, the Government decided to repeat its former official arrangements for the evacuation of those school children in London and the southern counties whose parents desired them to be transferred to safer areas, and also for the evacuation of mothers with young children who wished to leave for safer areas.

Despite the somewhat highly-coloured press reports, however, the present evacuation which is being conducted under actual bombardment by day and by night, instead of only in anticipation of attack as was the case four years ago, is on an appreciably smaller scale than in 1940. Official figures put the total of organised evacuation parties at about 200,000, but this figure does not include unorganised evacuation. It is the latter class of evacuees which has caused bookings from London to show an appreciable increase during the last few weeks compared with 1943. As the result trains have been crowded to an uncomfortable extent, but this is because the ordinary passenger train service is now on a considerably reduced scale compared with 1943 and pre-war years because of the unprecedented number of troop and Government stores trains which are now being run.

The official evacuation arrangements were carried out on similar lines to those adopted in 1940; the London County Council was responsible for the marshalling of the children at the schools and entraining at the stations and the L.P.T.B. conveying them to the main-line termini by train, bus or tram, some thousands of which were used for the purpose. At the termini the W.V.S. and many voluntary helpers rendered invaluable assistance. These official evacuation trains were loaded separately from those provided for the general public and the arrangements worked extremely smoothly, save for the minor difficulty of providing sufficient accommodation for the very large number of perambulators, children's cots and pieces of luggage which required to be moved. Concurrently, the ordinary passenger services have been strengthened, where essential, to convey the large number of people making their own evacuation arrangements.

This increase in passenger travel was further stimulated by the Government's expressed desire that as many people as possible should leave London and by the decision as from July 12 to revoke the ban on visits to coastal areas extending from Dorsetshire to Cornwall. Whether the Government was wise in opening these areas for the admission of visitors from all parts of the country instead of initially restricting entrants to those from the areas under attack is a matter of opinion. In

XUM

any case, people in London and the south whose holidays were due naturally took the opportunity of getting away to a safer area for a rest and change, thus further increasing the railway companies' task. With the very limited train service, even allowing for the relief trains, it has been necessary for passengers to stand closely packed in corridors and often in compartments; loads of 1,500 to 2,000 passengers per train with a seating capacity of 600 have been not unusual.

The average Briton is not easily rattled, however, and we understand that the peak load was carried during the week ended July 9, since which date the numbers carried have shown a material decrease. The general patience and good temper of passengers have considerably facilitated the efforts of the railway staff in controlling the large crowds, but their work has been long and arduous, and once again the nation owes a great debt of gratitude to the railway managements and railway staffs in London and the southern counties who, notwithstanding the frequent imminent danger signals and arrival of flying bombs, have proceeded steadfastly with their job of keeping the traffic moving.

Wartime Finance of British and U.S. Railways

WE have referred previously in our pages to the publication of the correspondence between the chairmen of our four main-line railways and the Minister of War Transport about the revision of the financial terms fixed by the Railway Control Agreement. Although greater demands are being made on the railways than were foreseen when the agreement was negotiated, the government refuses to increase the annual payments to the four groups, the London Passenger Transport Board, and the minor railways, amounting to £43,500,000 in all. This decision means that the return on the capital receipts of the main-line companies will remain at round about 3·6 per cent. during the period of control, and the Government takes the whole of the excess net earnings, subject to adjustment for abnormal wear and tear. The profits accruing to the State have increased by leaps and bounds as shown below:—

1941	£21,700,000
1942	£45,700,000
1943	£62,000,000

Even allowing for the great amount of traffic passing on Government service, the position is hardly equitable. In 1937 the main lines earned a return of 3·5 per cent. and either equalled or passed that figure in seven other peaceful years between 1923 and 1939. It seems unreasonable that they should be deprived of all reward for the unprecedented efforts which they have made since the outbreak of war. Worse still, they will be unable to make adequate provision to meet the difficult situation which is sure to arise after the war. Working expenses will then be high, largely because of the Government's policy in advancing wages and allowing the price level to rise, while keeping railway rates and charges on a comparatively low basis. Any allowance for exceptional wear and tear of maintainable assets, which may be conceded by the Minister of War Transport, will not go far to meet the railway companies' needs at the end of control when war traffic will cease and the competition of other carriers may be intense.

In America the position is different. The Government has left the railways to carry on as in peacetime, subject to the guidance of the Office of Defense Transportation. The rail carriers are paid for conveying additional traffic as the work is performed. In 1937 they earned a return of only 2·27 per cent. on their aggregate property investment. In the prosperous year of 1929, the return was 4·8 per cent. and during the war years it has been

1941	3·75 per cent.
1942	5·5 „ „
1943	5 „ „

As pointed out in the article on the Interstate Commerce Commission published in our June 23 issue, taxes in the U.S.A. have become burdensome with the result that the net income of the railways after increasing rapidly for two years is now beginning to decline. The table below gives details:—

	Net income in millions of dollars
1929	$697
1940	$189
1941	$500
1942	$902
1943	$874

Traffic was still mounting during the first quarter of this year, total operating revenues showing an increase of 8·7 per cent. over the first three months of 1943, but during the same periods operating expenses increased by no less than 18·8 per cent. Net operating revenue fell in consequence by 7·4 per cent., and the operating ratio went up from 61 per cent. to 67 per cent. Taxes rolled up by another 5 per cent. and the railways were left with a drop of nearly 24 per cent. in net income.

These striking figures are culled from the monthly statement issued by the Bureau of Railway Economics, Association of American Railroads. The March return, with separate particulars for all the important railway systems, was circulated early in May and prompted the Bureau of Transport Economics & Statistics, Interstate Commerce Commission, to calculate the net effect of applying current wage scales, rate levels and other deductions to the traffic of 1940. It finds that there would be a deficit of $446,500,000 in net income before federal taxes are taken into account. The moral is that the American railways are well advised to make provision for a rainy day, as they are doing by restricting their dividend payments. If, as is probable, their after-the-war traffic shrinks to something like its peacetime volume, their prospects of balancing their accounts will turn on four points:—

(1) Some wartime working economies may be retained.
(2) A reduction in the level of wages may be negotiated.
(3) The I.C.C. may approve an increase in freight rates.
(4) Prices of materials may decline.

The I.C.C. Bureau of Economics & Statistics has the temerity to suggest that the further consolidation of railways might bring additional economies. Since the last war little progress has been made with railway amalgamation in America because of the root and branch opposition of many interests. Carefully reasoned plans for mergers have been prepared, but the I.C.C., so far as we are aware, has not taken active steps to bring the schemes to fruition. In this respect Great Britain has moved more decisively as exemplified by the grouping of 1923. The existence of four strong main-line organisations and of an efficient London Passenger Transport Board may simplify the task of coping with any difficulties which the war bequeaths to our railways.

The Signal & Telegraph Technical Society

VERY soon after railways came into existence as public passenger transport organisations, with promise of extending their activities rapidly throughout the world, it was seen that the engineering work associated with them, especially in the construction of permanent way and locomotives, would call for increasingly specialised knowledge and lead to the rise of railway engineers, civil and mechanical, as a distinct class in the engineering profession. Soon, too, the electrical engineer, first with the title of telegraph engineer, became associated with the new means of transport, and his field of action eventually developed in directions at first scarcely contemplated. The new profession of railway engineering in course of time found its need of a scientific association where it could meet to discuss its tasks and exchange technical information catered for by the three leading engineering institutions, the Civils, Mechanicals, and Electricals, and many aspects of railway engineering were ably dealt with before those bodies on numerous occasions.

For the rank and file of the railway service, however, no equivalent body existed, but here and there praiseworthy attempts were made to establish such things as enginemen's improvement classes and societies which achieved much deserved success; also, mechanics' institutes were founded at many centres, where the immediate educational needs of the railway artisan were met and the technical details of his daily work were dealt with. Great praise is due to those who conducted, and still conduct, these movements and gave freely of their time to them. The founding of the Permanent Way Institution sixty years ago marked the creation of an association which has most successfully catered for the needs of the wages grades in railway civil engineering work and formed a common ground, where the professional engineer and the workman could meet and discuss, to their mutual advantage, the scientific and practical sides of their complementary tasks.

In early years little attention was given to railway signalling as a specialised art, save on the part of those connected with then well-known firms, whose names are still remembered, and to whom such work was almost invariably entrusted, as was also the maintenance in some cases. Eventually, however, the increasing complexity of the subject and the extension of the use of electrical signalling devices led signal engineers some 35 years ago to found their own professional association, as did the locomotive engineers also. The work of both was sufficiently specialised to justify such a course. The signal and telegraph departments of our railways, however, include large numbers of

men engaged on the indispensable work of installation and maintenance, who felt a need for some educational association of their own, a wish that has persisted in spite of the existence of training facilities organised by the railways themselves.

Some years ago, indeed, more than one abortive attempt was made to establish a society of this kind, but not until 1933 was the idea successfully realised in the founding at Chester of the Signal & Telegraph Technical Society, in consequence of the efforts made by Mr. H. E. Morgan, Divisional Signal & Telegraph Engineer, Western Division, L.M.S.R., and who is now its President. Mr. Morgan was President for 1935 of the Institution of Railway Signal Engineers, to which body the Society is affiliated. That the new venture met a real want was shown by the success it rapidly achieved, branches being formed at Birmingham and Liverpool in addition to the original group at Chester. All three were active until the war and several signal engineers and their assistants, some from the manufacturing firms, rendered appreciable help by giving lectures, providing facilities for installations to be inspected, and in other ways. The war interfered temporarily with the society's activities, but they were finally resumed in 1942 by the Liverpool branch and will be, it is hoped, by the others very shortly. That branch recently has issued an attractively produced journal containing an address by the President, lectures on relay interlocking, electrical controls in mechanical signalling, power for signalling installations, and American signalling practice, together with the proceedings at a why-and-wherefore discussion meeting, at which questions were answered by a panel of experts.

The whole bears witness to a most praiseworthy enthusiasm and affords proof of what can be accomplished in such things when a spirit of emulation animates those concerned. In these days of rapid advancement in so many directions in signalling, employing scientific developments completely foreign to the signal staffs of years ago, a wide field of interest is opened up to all engaged in it who, apart altogether from any material consideration involved, cannot but find their daily tasks made more attractive by an intelligent understanding of their principles and details. We believe that the Signal & Telegraph Technical Society only requires to be better known to obtain a considerable increase in membership. The self-sacrificing work which we know to have been put into it by a number of persons deserves to be marked by a thorough and permanent success. In entering on a renewal of activities, with the prospect that the end of hostilities is at last within appreciable distance, it takes with it our best wishes for a prosperous future.

Steam and Diesel-Electric Locomotives for Shunting

IN a recent editorial in our contemporary, *The Engineer*, a comparison is made between steam and diesel-electric shunting locomotives—somewhat to the disadvantage of the latter. This seems to be due, to some extent at least, to certain misapprehensions regarding the diesel locomotive itself and the particular duties, confined to yard working, that it is designed to perform. Reference is made to the complications of the engine and the electric transmission. It is true that the engine demands a greater degree of accuracy in manufacture and maintenance than a steam locomotive, but with modern tools there is no difficulty in meeting the requirements of production, and the design is such that the necessary standard can be maintained in service with no serious difficulty. The maintenance schedule given in Mr. C. E. Fairburn's recent paper on the subject may seem formidable, but in practice all the operations are simple and can be carried out quickly. The proof of the pudding is in the eating, and the availability of the diesel unit is higher than that of the steam locomotive used in similar work. It seems to be suggested that the total enclosure of the engine and the filtering of the lubricating oil are points against the diesel unit, but steam locomotive engineers would be glad if they could arrange similar conditions for the moving parts.

The 50-ton 0-6-0 steam shunter may be taken as a basis for comparison with the standard L.M.S.R. diesel-electric shunter. The tractive effort of the diesel unit is higher at low speeds, and therefore it has a definite advantage in the speed range used in yard working. Incidentally, the L.M.S.R. diesel shunters are used comparatively little for hump shunting; most of their use is in normal yard work. Admittedly, the steam shunter maintains its tractive effort to a higher speed, so enabling it to perform other duties, and its maximum horse power is correspondingly greater, approximately twice the rated horse power of the diesel locomotive. Obviously, therefore, when doing the same work, it operates at an even lower percentage of its maximum power than the diesel locomotive. The maker's rating of a diesel engine is fairly near to its maximum output and it is a matter of economics how close to this rating an engine should be operated for long periods; in this respect it does not differ from the steam locomotive, the maintenance cost and reliability of which is similarly adversely affected by continuous working near the maximum output.

As regards mileage between overhauls, it is misleading to take a speed of 5 m.p.h. in computing figures—the actual figure in purely shunting work appears to be about 1·2 to 1·4 m.p.h. When this is taken into account, it is found that the hours in service between works overhauls of a diesel shunter are considerably in excess of those of a steam locomotive engaged in similar work. The question is raised also as to the possible performance of a steam locomotive specially designed for shunting duties. Various attempts have been made in this direction but, though some have appeared promising, none has established itself, a fact not without significance. It is not, of course, to be inferred that the favourable characteristics of the diesel shunter referred to here make it universally applicable. Both diesel and steam shunters have their particular spheres of application; the division between them is set primarily by economics.

The 4-8-0 Locomotive

LOCOMOTIVES of the 4-8-0 type have never been numerous, even on a world census, where the larger gauges are concerned; and with the notable exception of the Chapelon rebuilt 4-8-0s in France, and some heavy main-line passenger engines in Spain, the type does not seem to have achieved anything like the same brilliance in operation as other eight-coupled types, or even Pacifics. The "Mastodon" type, as it has been called in America, for standard (or larger) gauges is chiefly confined to rather slow-speed work in mountainous country; we recall the use of such engines in Scandinavia, on hilly roads in Italy, Spain, and in the Balkans. In this country the few examples of the type are all tank engines for hump shunting on the L.N.E.R. and the Southern, and the only Irish example, designed in 1914 by Mr. Watson, disappeared a few years ago. It must be admitted that in many instances the performance of large 4-8-0 locomotives has been far from creditable, and this may have prevented the more widespread adoption of the type.

On narrow-gauge railways, however, especially those of light construction, the 4-8-0 locomotive has a long and honourable history. The classic examples on the railways of Tasmania, supposed to have been modelled on the lines of Jones's pioneer 4-6-0s on the Highland Railway (which indeed they strongly resemble) have rendered excellent service for over forty years. On numbers of narrow-gauge lines, in every continent, light 4-8-0s are the mainstay of the locomotive department, where their high proportion of adhesive weight is well appreciated, whilst to the engineer's department they are welcome because there are sufficient coupled axles to enable a good distribution of weight to be achieved. For larger gauges, a 2-8-2 locomotive would probably be more acceptable, but the 4-8-0 type is simpler to construct and probably cheaper to maintain.

A good example of a straightforward, robust 4-8-0 locomotive is given in our article on page 86. The engine is one of an order for twenty, ten of which have just been completed by W. G. Bagnall Limited, of the Castle Engine Works, Stafford, and ten by Andrew Barclay Sons & Co. Ltd., of Kilmarnock, who are to be congratulated on their success in meeting the very difficult limiting conditions. The gauge is only 2 ft. 6 in., the rails only 30 lb. per yard, and the maximum permissible axle load is 5 tons. The engines are of simple construction, following British practice generally, and should give a very good account of themselves. The tender is of ample capacity, designed so that its weight when full, 19·75 tons, shall just fall within the permissible limit for four axles. No locomotive engineer likes the idea of his engines towing a lot of dead weight about with them, and in any good design the aim is to keep the empty weight of the tender to the absolute minimum consistent with the avoidance of flimsy construction. In the present instance the empty weight of the tender reaches the remarkably low figure of 8·31 tons, or little over 1 ton on each wheel.

The Sierra Leone Government Railway had only four main classes of locomotives; the first two are the existing 4-8-0 types, non-superheated and superheated respectively; the third is a 2-6-2 tank design; and the fourth 2-6-2 + 2-6-2 Beyer-Garratts for heavy long-distance goods haulage. In war conditions, however, some existing engines have been rebuilt locally to produce an eight-coupled Garratt and a ten-coupled tank engine, as we recorded in our issue of July 7.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Indian Railway Inspectorate

c/o The Standard Bank of South Africa,
Durban. June 12

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—A copy of your valued journal dated January 28 containing my portrait and biography reached me safely the other day after the usual mail delays. Very many thanks. It was a surprise to get your journal in these days of "scarcity." It is one that I always took a special interest in during my 32 years on railways in India.

The biography was a fair one on the whole. I was Senior Government Inspector of Railways, Circle No. 4, from May, 1938, to May, 1941, and descriptions of accidents in your journal were always of great interest to me during this time. The cut in pay of senior inspectors, when the Inspectorate was separated, and the severe curtailment in prospects in the last few years in India, were largely responsible for my early farewell to things railway in India.

All good wishes for the future.

Yours faithfully,
P. W. WILTON DAVIES

Cylinder Wear

The Superheater Company (Australia) Pty. Ltd.,
185, Elizabeth Street,
Sydney, N.S.W.,
Australia. May 15

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Your editorial, "Wear of Cylinder Castings" and article "Cylinder Wear" in your issue of January 14 last, calls for comment especially as regards the Australian railways.

It would appear from the article that air valves are of recent development, whereas actually they were fitted on some of the very earliest superheated locomotives. The writer recalls the first five Schmidt superheated locomotives on the Central South African Railways in 1910 which were fitted with air valves on the steam chests. These locomotives were originally supplied with mechanical lubricators without atomisers, but due to the amount of coasting considerable cylinder and valve wear was caused by "so-called" carbonisation. They were replaced by hydrostatic displacement lubricators and the amount of carbonisation immediately reduced. In Australia the great majority of locomotives are fitted with hydrostatic displacement lubricators in preference to mechanical lubricators.

Carbonisation can be overcome by destroying the vacuum caused through coasting, thereby preventing hot gases and ash being drawn down the blast pipe. Air valves cannot do this completely and, so far as is known at present, the only satisfactory method is to admit the correct amount of steam while coasting.

It may interest some of your readers to know that all the New South Wales Government Railways superheated locomotives (over 800), a large proportion of which attain a final steam temperature of 690° F. to 750° F., whether fitted with mechanical or hydrostatic displacement lubricators, have a simple steam drifting gauge located in the cab in front of the driver. This gauge is connected to one of the main smokebox steam pipes by a ¼-in. bore copper pipe and is marked "O" at the top with vacuum and pressure indication on each side. The main regulator is provided with a small drifting valve that operates on the first movement of the locomotive handle and can be adjusted easily to admit the required amount of steam at atmospheric pressure to the steam chests and cylinders at all coasting speeds. Drivers are instructed to crack their regulator drifting valve when coasting so as to keep the pointer of the drifting gauge at "O." The drifting gauge removes all fear of the enginemen driving their locomotives when coasting. They very quickly become keen and efficient in working to the gauge and even when making a stop do not finally cut off the steam until the locomotives comes to rest.

Apart from the much longer life obtained from the valves and piston rings due to the almost entire elimination of carbonisation, it has been found that having steam at atmospheric pressure in the cylinders at all times when coasting, locomotives drift very much more freely, and the general wear and tear of the running mechanism is considerably reduced, at the same time permitting comfortable riding for the crew on the footplate.

The drifting gauge does away with the necessity of air valves, by-pass valves, dampers, or any of the numerous other fittings that were at one time or another considered essential to attach to a superheated locomotive.

On the New South Wales Government Railways piston rings on goods engines have given a service mileage of 86,000 before renewal, and valve rings 80,000, the average being 60,000 and 32,000 respectively. On passenger engines 62,000 miles have been obtained from piston rings and 55,000 from valve rings, the average figures being 33,000 and 43,000 respectively. On one of the latest passenger engines the valve rings have completed 97,000 miles and are still in service.

Your remark that "the difficulties due to superheated steam though still present are no longer mysterious," prompts the writer to give the following information:—During the year 1942 under wartime conditions, the New South Wales Government Railway's 804 superheated locomotives ran a total mileage of 31,500,000 and there was only one failure due to superheater equipment. During 1943 the number of superheated locomotives increased to 820 and mileage to 32,000,000 and during that year there was not a single failure due to superheater equipment.

The writer wishes to express his indebtedness to Mr. H. Young, C.M.E. of the New South Wales Government Railways, for the figures quoted above.

Yours faithfully,
R. S. YORK,
Director & Manager

The Pros and Cons of Railway Electrification

July 21

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—"Railway Electrification Pros and Cons" might have been written by a civil servant! A lot of its points are correct, but there is nothing new in any of them and it doesn't show the way through the wood. The article is as inconclusive as Nicholls & Company's pamphlet on road haulage. The world can't wait indefinitely for people to make up their minds.

Yours truly,
STATISTICIAN

Publications Received

The Stock Exchange Official Year Book, 1944. London: Thomas Skinner & Co. (Publishers) Ltd., Gresham House. Old Broad Street, E.C.2. 10 in. × 7¼ in. × 4 in. 3,120 pp. Price £4 net. Including postage (British Isles), £4 1s. 6d.; (Europe), £4 3s. 9d.; (U.S.A. and Canada, duty paid), $25; elsewhere, £4 5s. 6d.—Restrictions and controls and other difficulties incidental to the present situation have combined to delay the publication of the 1944 edition of this indispensable work of reference which makes its fifth appearance during the period of war. Recent information as to securities and undertakings in enemy and enemy-occupied countries is, of course, unobtainable and it has once more been found necessary to reproduce figures of this character which had been published previously. With this exception, the main features of the publication appearing during the war years have been retained and the price remains the same as that of the previous edition. All the available information as to securities throughout the world which the investor is entitled to expect accordingly may be looked for. As before, figures relating to the London Passenger Transport Board, the Port of London Authority and the Railway Clearing House will be found in the "Public Boards" section. A concise summary of the railway control agreements is given in the section "Railways—Great Britain and Northern Ireland," which also contains particulars of the amalgamated and absorbed railway undertakings and of the investments in other transport undertakings of the four main-line railways, as well as their financial results for the past ten years so far as Government control allows. Under "Indian Railways" recent acquisitions by the State are duly recorded and particulars of earlier State purchases by annuity or other financial arrangements are also given. The "Supplement" at the end of the volume again sets out information received too late for insertion in the appropriate section. We have been unable to discover in the volume any particulars of the Northern Ireland Road Transport Board.

Through the Backbone of England. By Stanley Chadwick. Huddersfield: Published by the author at 5, Gramfield Road, Crosland Moor. 7 in. × 4¾ in. 8 pp. in stiff paper covers. Price 6d., plus 1d. postage.—During the summer of 1943 the author conducted a party of young persons through the Standedge canal tunnel, and added to the interest of the trip by duplicating a short history for distribution to the members. Requests for copies of this were received from many persons, and interest in the subject has been renewed in consequence of the decision of the L.M.S.R. to close the tunnel to navigation. The present booklet consists of the text of the original notes, amplified and presented in more permanent form.

The Scrap Heap

The recent death, at the age of 92, of Mr. Roelof Abraham Zeederberg, has severed another link between the old and the new Transvaal, for, since the days of Cecil Rhodes, his name has been associated with a coaching service which ran between Johannesburg, Kimberley and Pretoria, and between the eastern Transvaal and Bulawayo. At the age of 18, he travelled to Kimberley and met Cecil Rhodes, who suggested his starting a transport service. This service was later destined to take part in the relief of Mafeking. Lord Randolph Churchill was one of the first to travel in Zeederberg's coaches, the last of which has been preserved in Rhodesia.

* * *

"If you must purr, for heaven's sake don't cut out suddenly in the middle"

[From the "Daily Express"

* * *

Out of scrap brought to India from the Middle East, men at one Indian railway stores last year retrieved material worth nearly Rs. 4,30,000. The scrap included parts of motor cars, many of German and Italian origin; aeroplanes; small arms; marine engine parts and ship fittings; and even live bombs. Serviceable articles amounting to 540 tons were re-issued to various services; and 1,000 tons of unserviceable scrap was sent to steel mills for conversion to steel sections, 80 tons of which was used by the railway concerned and other Government departments. Similar organisations for sorting and classification have been set up in other parts of the country.

Tin Hat and Attache Case

A fashion has begun among military persons employed on office duties of carrying their tin hats to and from their work. The headgear is often slung on the shoulder, where it constitutes a considerable menace to fellow travellers and to carriage windows or other sheets of glass against which the wearer may thoughtlessly lean. When carried in this fashion the wearer finds that the protruberance at his back prevents him from sinking down amid the cushions of his third class carriage. However, to remove it at this stage is impossible, for once its owner is seated the hat can be dislodged from its perch only by flail-like motions of the arms and a jitterbug wriggling of the body from the waist upwards. An alternative is to have the hat already in the hand on entering the carriage, when the owner lays it on top of his attaché case on the rack. Reaching his destination, he is then liable to whisk his case off the rack with the expert movement developed to save precious seconds in alighting, and earn him a place at the head of the crowd of furies racing for the stairs to the Underground or for the bus for home. Violently projected from its perch, the headgear then crashes on a densely populated area, causing damage and casualties. Besides these inconveniences, the advantages of a tin hat are less obvious, and so far the most practical use for one we have observed was made by an A.T.S. officer, who had stuffed into the crown of her's a packet of sandwiches to eat on her journey.

B. K. C.

* * *

Attention

The following appeared in a recent issue of *The Victorian Railways News Letter*:—

"We all like attention. If we have to buy anything, we like the salesman to take an interest in our needs, even if—as is not unusual nowadays—we are unable to get just what we want. Our own customers feel the same way. Under wartime conditions we are unable to give them all that they would reasonably expect from us in normal times. This is not due to any fault of ours, but because coal supplies are short and war needs must receive priority.

"But, if we cannot offer our customers just what we would like to, we can at least demonstrate that we realise they are entitled to the best attention and the most friendly help we are able to give. There could be no better recommendation than to have it said of us: 'The railways have a tough job, but we feel they are trying to meet our wishes.' If we have earned this praise, we will have gone far towards securing the goodwill and the future custom of those who are now dependent on us for service."

* * *

Below the shrubbery of "The Wilderness" was a hedge where Geoffrey watched the roaring passage of the Yarmouth express. No modern sentimentalist of locomotives could persuade him of any machine so glorious as those big blue engines, terrible with red buffers, and flying rods that flickered like brandished fists. The engine took the S curve with a scream of defiance, the string of golden-brown carriages straightened out to rocket past the water-colour meadows. Uncle Dan said someone had drawn a red herring across the track, that was why the trains were so wild. Already they smelled the bloaters of Yarmouth, forty miles away.—*From "Thorofare," by Christopher Morley.*

* * *

Begging from railway passengers at country stations in South Africa by coloured children for some time has been causing annoyance. Since 1936 the Railway Administration has received complaints, and various measures have been introduced; but, although begging has been reduced, it has not stopped. Some of them have revealed considerable ingenuity. On one occasion a passenger train, which should have passed through, had stopped short of a signal. Children had changed the signal to "danger" by placing a large stone under the lever.

* * *

Tailpiece

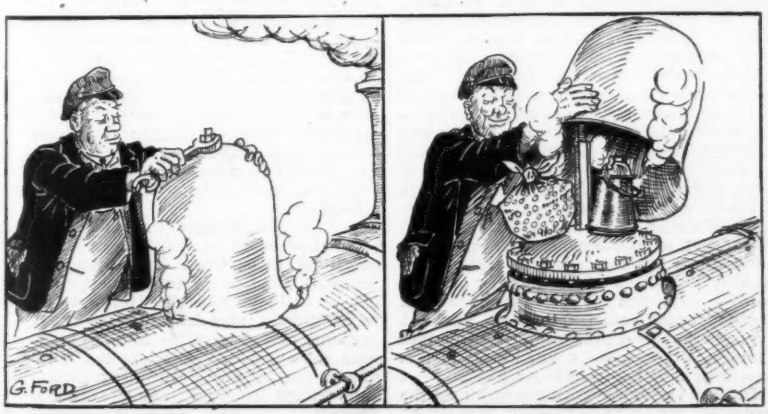
(Evacuation of children from places exposed to the "flying bomb" has been carried out by rail)

When guns must pass and soldiers need
To move with secrecy and speed,
And transit must be smooth and quick,
Then British Railways do the trick.

When mothers find it asked of them
To seek another scene *pro tem.*,
And children must be moved in force,
They send for British rails—of course!

A child, a mother, or a gun
For teaching manners to the Hun—
The railways handle each in turn
With equal skill and unconcern

E. C.



Thought for food

"There was a precisely similar wave of optimism early in the thirty years' war"

[Reproduced by permission of the proprietors of "Punch"

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

VICTORIA

Rapid Bridge Restoration

Splendid team work was responsible for the restoration in six weeks of two bridges, respectively 810 and 270 ft. long, between Kilmany and Rosedale, which were destroyed in the disastrous bush fires that swept through this area of Gippsland on February 14. The surging fires, driven by a high wind, reduced both bridges to a few stumps of piles sticking up forlornly in the air, with the rails drooping down on to the ground below. New permanent fireproof structures of concrete and steel are ultimately to be erected on the sites of the burned bridges, and the two temporary bridges have been erected alongside the sites. In order to connect the temporary bridges with the existing lines, 220 ft. of new bank were required at each end of each bridge, involving 5,000 yd. of earthwork.

Gangs of skilled men with the necessary pile drivers, dragline excavators, and other implements, were assembled on the sites of the ruined bridges within a week of the fire, and, working steadily for 10 hours a day every day in the week, they completed the jobs and restored rail transport between Traralgon and Sale in time for the Easter traffic. Both of the temporary bridges have been constructed with pile piers and rolled steel beams. The larger bridge, crossing the Latrobe River, stands 22 ft. above summer level of the stream; the smaller bridge has a maximum height of 22 ft.

SOUTH AFRICA

Transvaal Railway Schemes

As recorded in the July 7 issue of *The Railway Gazette*, lines are to be constructed at a total estimated cost of £742,476, of which £487,200 has already been spent, between Canada and Thomolong, Hercules and Koedoespoort, Springs and Welgedacht, and between Village Main and Faraday Street in Johannesburg. More than £100,000 will be spent this year on additional tracks in the Western Transvaal System, and £5,000 on the quadrupling of the Pretoria-Hercules lines, the total cost of which will be £260,000. Approximately £40,000 will be spent this year on the electrification of sections of the railway system on the Rand.

To Johannesburg has been allotted £5,000 for additional office accommodation, £1,100 for a bridge between railway headquarters and the station buildings and £5,000 for station improvements. Workshops and office accommodation for the electrical staff at Langlaagte will be erected at a cost of £8,000, of which £3,000 will be spent this year; and booking office and goods accommodation will be built at Orlando at a cost of about £1,300.

Works at Pretoria

The sum of £60,000 will be spent this year on railway workshops to be erected at Pretoria, at a total cost of £2,200,000; and £20,000 of an estimated total of £85,000 will be spent on alterations and improvements to Pretoria West Yard. Also at Pretoria, £5,000 will be spent this year on the railway hotel to be erected at a total cost of £287,000; the sum of £40,000 is provided for new offices for the Ministry of Transport, which will cost a total of £325,000; and £6,000 of a total of some £155,000 is provided for the remodelling of station buildings.

The electrification of the Germiston yard, including electric power signalling, will involve expenditure this year of nearly £50,000, out of a total of £746,000 for the scheme.

Provision is made for the erection this year of station buildings at Boksburg, at a cost of £9,900; and £7,000 of a total of £23,000 will be spent on new station buildings and yard alterations at Kendal; £6,500 will be spent on a station at Acornhoek.

Other Works

Other first instalments on additions and improvements on the Western Transvaal System include £6,000 for the remodelling of the yard and erection of a goods office at Olifantsfontein; £15,000 for a new marshalling yard for the Reef; £1,000 for the remodelling of Roodekop yard; £15,000 for a new marshalling yard at Vereeniging; and £2,600 for the remodelling of the Koster yard.

Breyten is to have new station buildings, to cost £1,100, and a new power station and plant to cost £22,500, of which £14,500 will be spent this year. The transfer of the power station at Waterval Boven and the change-over from direct to alternating current will cost some £51,600, of which £8,000 will be spent this year. A sum of £21,000 is provided this year for the remodelling of the yard and for a new station building at Waterval-Boven, and £850 of a total of £8,000 for the remodelling of the Tzaneen yard.

UNITED STATES

New Kansas City Southern Board

At a meeting of the directors of the Kansas City Southern Railway Company, held in New York on April 4, a resolution was adopted whereby eight previous directors of the company, from cities as remote from Kansas as New York, Boston, and Ogden, Utah, would be replaced by eight business men of the Middle West, all with direct interests in the system. At the annual meeting of the company in Kansas City on May 9, the eighteen directors proposed, including ten previous members of the board and the eight nominees mentioned, were duly elected.

Flood Protection on the B. & O. Main Line

Flood-protection work has been completed recently by the Baltimore & Ohio Railroad along its Washington-Pittsburgh double-track main-line between Williams, Pennsylvania, and West Cumberland, Maryland. Here the railway borders Wills Creek, which on certain occasions has been subject to severe flooding. In March, 1936, for example, when warm rains had caused an unduly early melting of ice and snow in the upper part of the Potomac Watershed, a sudden fall of 4 in. of rain in 12 hr. caused a rise in the river level at Cumberland of 20 ft. 6 in. in 18 hr. In the 17½ miles from Williams to West Cumberland, the destruction included a washout 1,500 ft. long and 25 ft. deep at Williams, smaller washouts, undermined bridge abutments and miscellaneous damage at a large number of other points. Although the line was made good at that time, sufficient money was not available for flood protection; and further damage, although on a smaller scale, was caused by flooding in October, 1942.

In 1943, therefore, work was begun on the protection which has now been completed. At Williams a dry wall has been built, with stone from the river bed, for a distance of 2,100 ft., tapering from 8 ft. wide at the base to 4 ft. at the top, and 18 ft. high, which brings it 3 ft. above the 1936 flood level. At Bridge No. 9, east of Hyndman, a 450-ft. retaining wall has been built along the south bank, and the channel of the stream has been deepened. At Cooks Mills the channel has been widened 100 ft. for 600 ft. upstream from the bridge, and 75 ft. for 1,500 ft. downstream, and some deepening has been carried out. Various other protection works have been undertaken along the route.

Crossing in New York State

Despite the shortage of labour and materials, considerable progress was made in New York State during 1943 with the elimination of level crossings. Grade separation was completed at 17 crossings other than those in the vicinity of New York City, where the Atlantic Avenue, Rockaway, Garden City, and other elimination projects have been advanced a stage further. Most important of the up-state schemes was that at Herkimer, on the New York Central main-line in Oneida County, where seven crossings were eliminated at a cost of $3,500,000. (A paragraph giving details of this scheme appeared in our March 3 issue.—ED., *R.G.*). Others were in the villages of Hempstead and Garden City, Nassau County, at a cost of $538,000, and in Buffalo, at a cost of $693,000. In all, the New York Public Service Commission reports, a total of $4,963,000 was spent on grade-separation work.

Since work of this type was begun in 1897, a total of 1,511 crossings has been replaced by bridges or subways in New York State, outside New York City, and of these works 929 have been carried out since 1920 at a total cost of $95,534,800. In 1941, the legislature established a programme covering 197 crossings, and estimated to cost $51,567,000; of these 18 now have been dealt with, at a cost of $6,084,690. Due to changed conditions, 15 of the 197 crossings have been removed from the list. In many cases additional protection in the way of flashing-light signals or other safeguards has been installed. To afford additional safety to the public, 44 railways in the State have been ordered to instal one or more of several protective devices at each of 600 level crossings where the present protection is considered inadequate.

CEYLON

Merchandise Traffic

Considerable restrictions now exist on goods traffic; and, except on the Talaimannar (Indian) and Kelani Valley lines, acceptance for conveyance is limited to certain classes of commodities. It has been proposed, however, that the maximum-weight restrictions imposed some time ago on parcels traffic be withdrawn, as the Railway Administration has found that consignors have resorted to various methods of avoiding them; heavier consignments have been split up into smaller parcels, which merely has resulted in more clerical work and the need for more labour for loading and unloading.

Passenger Travel

The restrictions on booking to and from certain stations, which have been in force for some time, were extended during the Easter holidays and the Hindu and Sinhalese New Year celebrations to cover all stations. Passengers to and from India were not affected. It is reported that the scheme did not prove altogether successful, and tended to lead, among other disadvantages, to illicit trafficking in railway tickets.

Railway Wagon Maintenance*

A suggested reorganisation of repair depot facilities

THE total number of railway wagons under and awaiting repair is a figure of great importance, as it shows the number of vehicles out of service. Its fluctuation indicates the effect of the demand for transport on the wear and tear of vehicles, and also to some extent the efficiency of maintenance. There will always be some unusable vehicles and so long as the total number of these is reasonably small in proportion to the number of usable vehicles the matter is not of grave concern. At the present time the figure shows a considerable upward trend, and the causes which give rise to this are worthy of attention. This is of special concern to the Outdoor Carriage & Wagon Section of the Chief Mechanical Engineer's Department, as it is its function to carry out the examination and repair of wagons.

Men qualified to examine and repair vehicles are distributed over the whole of the railway system so that one is available within reasonable time and distance at any point where such services may be needed. At places where ample scope is offered, as at large marshalling yards, several men are employed under a chargehand or foreman and constitute the repair depot. A number of depots is grouped in areas under the supervision of District Inspectors who are responsible to the Outdoor Carriage & Wagon Assistant to the Chief Mechanical Engineer. Light repairs are done by the staff of the Outdoor Carriage & Wagon Section and heavy repairs by the main workshops.

The focal point of interest is the wagon repair depot and the manner in which it operates. On the arrival of a train of vehicles a carriage and wagon examiner attaches a red and white "not-to-go" label to those which must receive attention. The Traffic Department then separates these from the good vehicles and they are placed together on a road set aside for the purpose termed the "cripple road." The day's accumulation of vehicles is later taken from the cripple road and placed in a repair road where the actual repairs are carried out; the vehicles already repaired are removed in the same operation.

The arrangement has functioned well in spite of a number of inherent difficulties, but circumstances have changed and it becomes clear that marshalling yards are not the most suitable strategic positions for the establishment of repair depots. The primary object of a marshalling yard is the efficient handling of traffic; consequently, when some ancillary undertaking like the work of a repair depot is superimposed on the primary work of marshalling wagons, difficulties often arise.

Freedom in movement of vehicles over the track is as essential to the Outdoor Carriage & Wagon Section as to the Traffic Operating Department. Track capacity is determined by the rapidity with which vehicles can be moved over it. It is equally essential that vehicles be moved in and out of repair roads with the same facility as marshalling roads; therefore, unless the maximum freedom of movement is secured on the repair road, either by the rendering of adequate shunting service, or by some other means, the problem will remain. The kind of work done in the marshalling yard is such that there is no place for any other activity, for on the one hand the work of marshalling suffers to the extent of the service it has to give to the repair depot, and the repair depot suffers by the inadequacy of that service.

The present organisation for dealing with the maintenance of wagons was in existence before 1921, and to a large degree has kept pace with the developments in railway organisation arising from the amalgamation of that year. I would not suggest that even under the great strain of the present moment the arrangements have broken down, but serious consideration should be given to the question of re-organisation. The problem is whether any better scheme can be found. The points to which attention must be given can be set down as follow:—

(*a*) Difficulties caused by repair depots being situated in marshalling yards.
(*b*) Inadequacy of the present type of repair road.
(*c*) Need for special shunting service.
(*d*) Disadvantages of remote control.
(*e*) Distribution of material.

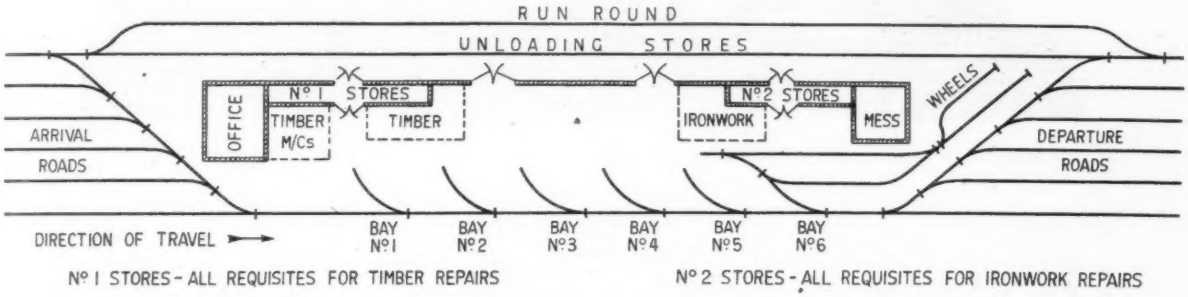
Looking at these as a whole, I suggest that there are indications of the need for a higher degree of centralisation. A comparatively small number of repair depots situated away from any marshalling yard would remove the majority of disadvantages. For example, no repair road shunting service of any description would be needed at marshalling yards. Defective vehicles labelled to a distant repair depot would require no greater attention than the good vehicles labelled to their destination, that is to say, defective vehicles would be shunted into a cripple road as at present and despatched to the repair depot in train-load lots. This reduction in shunting would compensate to some extent the additional empty haulage required between marshalling yard and repair depot. In depots with an entirely new layout directed solely to the needs of wagon maintenance, a number of reception roads would be provided converging to a single repair road and then branching out to an equal number of departure roads. Cripple wagons arriving in bulk on the reception roads would be made to pass through the repair road and, having received attention, would be placed on the departure road to be taken away in train-load lots. Engines bringing vehicles in would be used to clear the departure roads.

The cripple road would be equipped with bays running off the repair road in the reverse direction of travel down the repair road from the arrival to the departure end. The advantage of this is to provide the maximum amount of safety against accidental entry of wagons into the bays; it will also enable any wagon to be placed in any vacant bay, or removed from any bay throughout the length of the road. This ability to bypass other wagons makes for continuity in repair work over the whole of the working period, as it permits wagons to be released and taken to the departure roads as soon as repairs are completed. This arrangement of the repair road also permits the allocation of bays to predetermined classes of defect. As an example, the total number of bays provided may be allocated in four groups as follow:—

(1) Timber repairs, such as end and quarter boards.
(2) Timber and iron work, such as a flap plank and bent flap hinge.
(3) Iron work not involving the lifting of the wagon, such as brake gear.
(4) Repairs necessitating the lifting of the wagon, as for broken axle boxes.

The space at the back of the bays would be used for dumps of material according to the kind of work being done on the nearest bay. A considerable amount of flexibility would be obtained by giving over more than one bay to each pair of men when work may be commenced on one bay, and while defective material is being repaired, the waiting time could be occupied with work on a wagon in an adjoining bay. Accommodation for stores, mess room, and office buildings would be found on the bay side of the cripple road at the back of the material dumps. Two roads would be provided, one for unloading material direct into the

(*Continued on page* 87)



Suggested layout of a centralised maintenance depot for running repairs to railway wagons

* Abstract of a paper read by Mr. V. L. Vincent before the Institute of Transport Metropolitan Graduate & Student Society

Narrow-Gauge 4-8-0 Locomotives for Sierra Leone

With an axle loading of less than 5 tons, this powerful locomotive is a good example of what can be done on 2 ft. 6 in. gauge track, with 30-lb. rails

THE Sierra Leone Government Railway is laid to a gauge of only 2 ft. 6 in. and the track is of comparatively light construction. Single track is employed throughout, with flat-bottom rails originally laid on wood sleepers. The climate is notorious, and one of its characteristics is the way in which it promotes a peculiar type of damp rot which acts very rapidly on all forms of woodwork. Consequently, some sections of the line have been relaid with steel sleepers. The rails weigh 30 lb. per yard, and in consequence the permissible axle load is severely restricted; no more than 5 tons per axle is allowed. Despite these limitations, the railway system is well run, and has been particularly enterprising during the present war in undertaking a good deal of work for both the Royal Navy and the Merchant Navy in its workshops at the headquarters, Cline Town, Freetown.

The route mileage amounts to 306, and the main line climbs upwards inland from the coast over a difficult route, full of heavy gradients and sharp curves to Pendembu, almost due east of Freetown. Much of the country is dense jungle, but there are extensive cocoa plantations. The traffic is normally light, but the war has resulted in the building of R.A.F. aerodromes behind Freetown, and there has been a notable increase in freight traffic. The tablet system of signalling is used, with English-type lower-quadrant semaphores. With such an environment for their service, it can be realised easily that the locomotives for this railway must have to a pre-eminent degree the qualities of reliability, robustness, and lightness. To combine these diverse attributes in an efficient design has presented the makers with a difficult problem, in overcoming which, however, they have shown their mastery of the limitations which beset them.

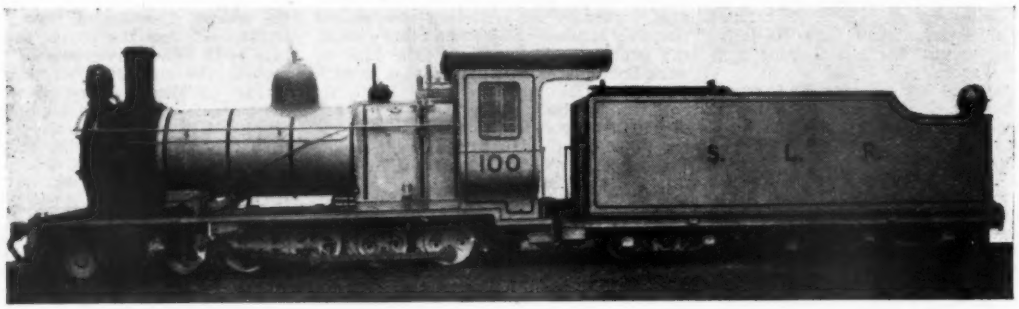
The new locomotives are twenty in number; ten have been built by W. G. Bagnall Limited, of Stafford, and ten by Andrew Barclay, Sons & Co., Ltd., of Kilmarnock. They are of the 4-8-0 type, which enables the weight to be so distributed that the maximum axle load conforms to the 5-ton limit, and the rigid wheelbase, 9 ft. 0 in., is sufficiently restricted to allow the numerous sharp curves on the system to be negotiated with ease. It will be noticed that there is no superheater; superheating has been tried on a few existing Sierra Leone engines, with the same wheel arrangement, but the benefits it confers in such conditions are so small as scarcely to justify its extended use.

The boiler is designed for hand-fired coal fuel, which is universal on the system, though it has become scarce during the war and is now often of very poor quality. An ample grate area of 12 sq. ft. is accordingly provided; the wide firebox is extended over the tops of the frames and supported on specially designed castings. The inner firebox, of copper, has a special brick arch which forms a combustion chamber at the front of the firebox. Ash which accumulates here is removed by a cast-iron shoot, fitted with a balanced door at the lower end. The boiler barrel, in two rings, with the dome on the rear ring, is 3 ft. 6¾ in. in external diameter and 8 ft. 7½ in. long; it contains 177 tubes of 1⅜ in. external diameter and 12 w.g. thick, and is pitched with its centre line 5 ft. 2 in. above the rails. The height to the top of the chimney is 9 ft. 10 in. from the rail.

To check the emission of sparks from the chimney, the smokebox is fitted with an arrangement of wire-netting grids and deflector plates which form a very efficient spark arrester, and which is easily removed for cleaning. The cleaning of the smokebox is further facilitated by the provision of an ash shoot in the bottom of the smokebox.

Feed water is supplied to the boiler by means of two No. 6 Gresham & Craven combination injectors which are mounted one on each side of the firebox at the top and which lift the water from the level of the tender tank. The safety valves are two in number and are mounted on a steam turret which also accommodates the other boiler mountings such as the blower valve, turbo-generator valve, lubricator valve, etc., and brings these fittings all together for easy manipulation by the driver.

The boiler is clothed with steel sheets supported by steel crinoline bands and



General view of one of the 2 ft. 6 in. gauge 4-8-0 locomotives for Sierra Leone Government Railway

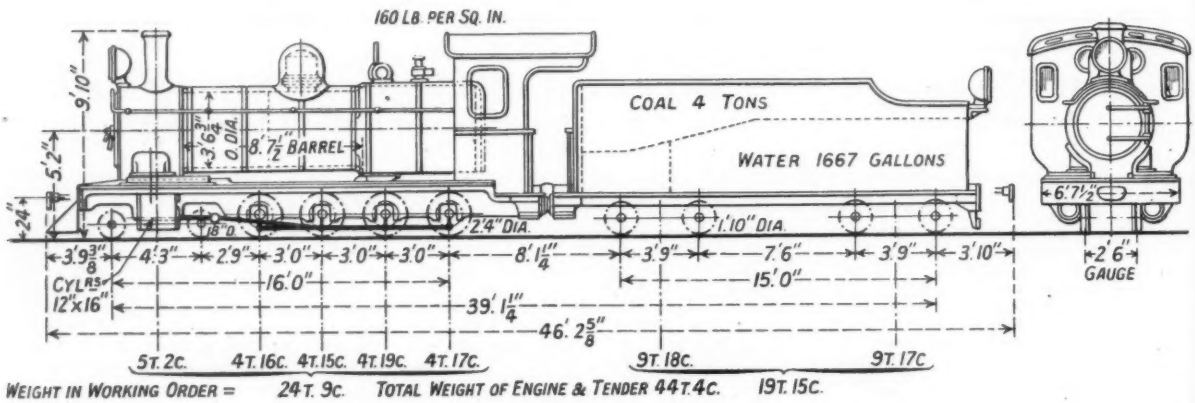


Diagram showing principal dimensions and weights of the locomotives

longitudinal carrying bars; the sides and top of the firebox only are covered with 1-in. thick blue asbestos mattress.

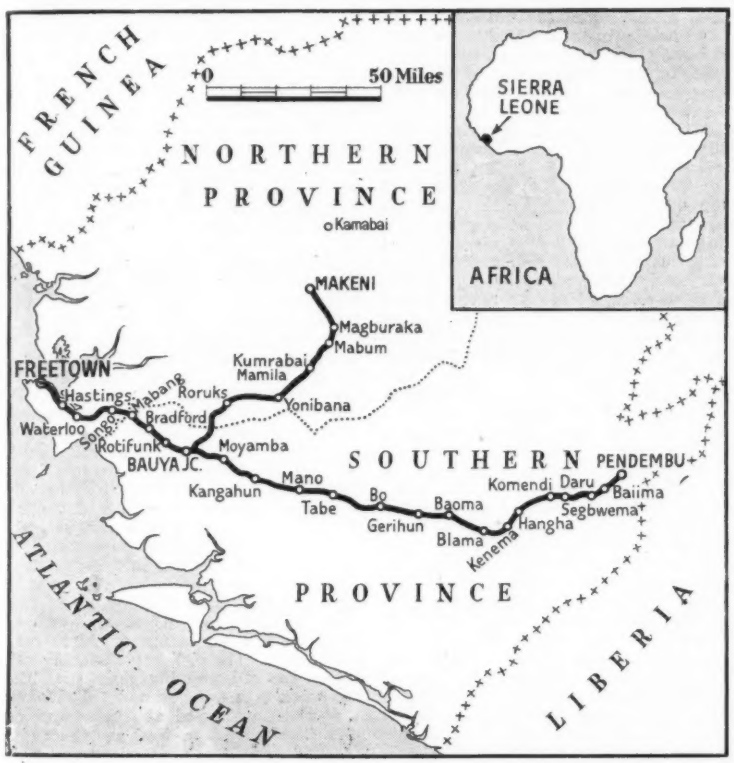
The main frames are the usual plate type, $\frac{7}{8}$ in. thick, stayed transversely by castings at the smokebox and at the firebox throat plate and back plate, and supported longitudinally by a heavy stretcher plate $\frac{3}{4}$ in. thick which runs the full length of the frame between the smokebox and the firebox throat plate. In addition, a number of flanged plate stretchers give additional transverse strength.

Each wheel is independently sprung and lubrication of the axleboxes and guides is provided for by means of a syphon type oilbox for each. The coupled wheel journals are also fitted with Ajax hard grease lubricators. The bogie wheel journals are oil-lubricated and fitted with Armstrong oilers in each keep. A Wakefield sight-feed lubricator with three feeds provides the lubrication to the cylinders and to the steam chests, with the other feed to the metallic packings of the piston rods.

The two cylinders drive the second of the four coupled axles. All the valve motion parts, and the connecting and coupling rods are designed for oil-syphon lubrication. Steam distribution is effected by piston valves arranged above the cylinders and operated by Walschaerts valve gear with screw reverse. The leading bogie wheels are 1 ft. 6 in. in diameter, on a wheelbase of 4 ft. 3 in., and the coupled wheelbase is 9 ft., equally divided between the four coupled axles. From the trailing bogie axle to the leading coupled axle the wheelbase is 2 ft. 9 in., so the total engine wheelbase is 16 ft. The engine weighs 24·45 tons in working order, of which 19·35 tons rest on the coupled wheels.

The eight-wheel double-bogie tender is of light welded construction, weighing only 8·3 tons empty, despite the fact that the tank accommodates 1,667 gal. of water and the self-trimming bunker no less than four tons of fuel; the loaded weight is 19·75 tons, and is carried by the bogies, spaced at 11 ft. 3 in. centres, having 1 ft. 10 in. diameter wheels. Each tender bogie has a wheelbase of 3 ft. 9 in. The total wheelbase of both engine and tender is 39 ft. $1\frac{1}{4}$ in., and the length overall is 46 ft. $2\frac{5}{8}$ in. In working order, the total weight of engine and tender is 44·2 tons.

Among the special equipment carried may be mentioned J. Stone & Co. Ltd. electric lighting apparatus, which embodies a turbo-generator of 350 watts, 24 volts, and which supplies current to a 14-in. Tonum "E" headlamp on the front of the smokebox and a similar lamp on the back of the tender; the usual cab and inspection lamps are also incorporated. The driver's cab, which is very wide and roomy, has been designed to give an extremely good lookout, and all the fittings have been compactly arranged within easy reach without entailing any overcrowding or congestion. The brake gear is fully compensated and the engine is fitted with a "20-13" combination ejector and steam-brake valve, for operating the steam brake on the engine and the vacuum brake on the tender and train. A hand brake is also provided on the tender. The engines and tenders were dismantled and packed for shipment to Africa.



Sketch map showing Sierra Leone Government Railway. A former section from Makeni to Kamabai was converted to a motor road in 1930

Main Particulars

Some of the dimensions of the engine and tender are shown in the diagram on the previous page and in the following table:—

Cylinders (2), dia.	12 in.
,, stroke	16 in.
Coupled wheels, dia.	2 ft. 4 in.
Evaporative heating surface—	
Tubes	669·04 sq. ft.
Firebox	54·00 sq. ft.
Total	723·04 sq. ft.
Firegrate area	12 sq. ft.
Boiler pressure, per sq. in.	160 lb.
Tractive effort (at 90 per cent. boiler pressure)	11,849 lb.
Adhesion weight	44,444 lb.

From the foregoing tabular data and the diagram, the following important design ratios are also appended:—

$\frac{\text{Adhesion weight}}{\text{Tractive effort}}$	3·75 to 1
$\frac{\text{Evaporative heating surface}}{\text{Grate area}}$ ...	60·25 to 1
$\frac{\text{Firebox heating surface}}{\text{Grate area}}$ ...	4·5 to 1
$\frac{\text{Tractive effort}}{\text{Evaporative heating surface}}$	16·39 to 1

(*See editorial article on page* 81)

IRON AND STEEL PRICES.—The Iron & Steel Control has had under consideration the desirability of publishing copies of the price schedules in force under the Iron & Steel Control Order for the various sections of the industry. The complications and lengths of many of the schedules have made this difficult, but the essential features of certain of the related schedules have been summarised in a form which appears suitable for general circulation; and such summaries relating to alloy steel; stainless steel; bright carbon steel bars and flats; bright mild steel wire (in straight lengths); and wire products (wire netting and second-hand barbed wire) have been published. It is hoped by the Control shortly to make available similar summaries of the schedules relating to other iron and steel products in general use. The full schedules are available for inspection at the Control offices but it is thought that these summaries will be of general convenience for reference purposes.

RAILWAY WAGON MAINTENANCE

(*Continued from page* 85)

stores and the other as a run round for the release of engine from one end of the depot to the other. These roads would be at the back of the building.

The rails of the repair roads and bays would be set at ground level and motive power would be supplied for the movement of wagons by a suitable type of motor tractor, or mechanical horse.

The successful operation of the repair depot depends on an adequate supply of materials, and a steady flow of wagons; given these, great economies could be effected. In the first place the ability to dispose of crippled vehicles from the vicinity of marshalling yards as the need arises would at once alleviate most of the difficulties from this source. The arrival of vehicles in bulk at the repair depot offers opportunity for instituting the economic practices associated with mass production, the use of power-driven tools, and specialised labour.

Cropping Battered Rail-Ends in the Track

The Southern Railway of America has perfected a method of cutting off the battered ends of rails in the track, and restoring the road without interruption of train service

AN elaborate organisation has been developed by the Southern Railway of the United States for dealing with battered rail-ends by cutting them off *in situ*, re-drilling, drawing up the rails, and inserting closures as necessary to compensate for the removed material. This method has been tried out on the important freight line between Louisville, Kentucky, and St. Louis, Missouri, which was laid with 85 lb. flat-bottom rail, in 33 ft. lengths, and was in bad condition at the joints. Before the war, the line west of Huntingburg handled about 14 trains daily, but as a result of war conditions the traffic has increased from 22 to 26 trains daily. As a result of heavy refrigerator traffic over the line, the joints had suffered severely from brine corrosion due to droppings from the refrigerator wagons. It was decided to cut 18 in. off each end of each rail, well clear of the joint, and so to reduce each rail length to 30 ft.; this increased the number of rail-joints per mile from 320 to 352, and required the insertion of an extra 30 ft. rail to every 10 of the cropped rails. The old fishplates were replaced by new head-free 24 in. 4-hole plates, and all sleepers carrying small soleplates or with the rails spiked directly to the sleepers were provided with new 7 in. × 11½ in. soleplates. Only on sharp curves, where the rails had been considerably sidecut, were replace rails laid (also cropped to 30 ft. lengths). Joints have been staggered, with each joint level with the centre of the opposite rail. It is estimated that by the cropping, the life of the rails will be extended by 6 years, and joint maintenance will be reduced by 10 per cent.

The gang used in the Southern rail-cropping operation consists of one foreman, one assistant foreman, 17 machine operators, 4 helpers, and 43 labourers; 66 men in all; the plant in use comprises 8 Racine rail saws; track drills, 2 flexible shaft grinders, 2 adzing machines, and 2 bolt-tightening machines, all of Nordberg manufacture; and a Woolery creosote-spray machine. Following is the procedure adopted. All material required is unloaded and distributed in advance by the local section gangs. The advance guard of the rail-cropping gang is a labourer who marks each rail at the point where it is to be cut and the location of the new bolt-hole centres; for this a special tool is used, comprising a steel frame which is clamped to the head of the rail at the correct distance from the end and five spring-return centre punches. Next come three power-driven drills, each manned by an operator and a labourer, drilling the two 1 in. dia. fishbolt holes in the new positions.

Following these are an operator and a labourer with a flexible shaft grinder, who with a grinding wheel 8 in. × ¼ in. grind a slot $\frac{1}{16}$ in. deep across each rail-head at the marked location of the cut; this is to expedite the actual cutting by penetrating the cold-rolled and hardened running surface of the rail, and has been found nearly to double the life of the saws themselves. Next an operator and a helper with a power-driven bolting machine unscrew the nuts of the old fishbolts, eight labourers with claw-bars draw the holding-down spikes, and another labourer with a sledge knocks the fishplates off the old joint. As soon as this has been done, eight saw operators, each with a power-driven saw, perform the actual rail-cutting; the cuts on either side of each joint, 3 ft. apart, are made in pairs. Five further labourers are provided with small trollies of special design, running on the opposite rail (one side of the track is tackled at a time; the opposite side is dealt with when the first has been completed), to carry the saws from each location to the next. An operator and a labourer, with a second power-driven flexible shaft grinder, chamfer the freshly cut rail-ends at the top corners, to prevent end-flow of the metal under traffic, to not more than a ¼ in. bevel. After them a labourer paints the rail-ends with asphalt metal preservative, and oils the inside surfaces of the new fishplates.

The cut rails are now pulled into the centre of the track by two labourers with lining bars. A labourer with a clay pick removes the old soleplates; two labourers drive down any broken spike stubs with a sledge-hammer and pointed spike driver; two labourers are used to plug the old spike-holes with creosoted plugs; and two more labourers drive these flush. Two operators and two helpers with power-driven adzing machines adze the seats for the new soleplates, and two labourers apply creosote to the adzed surfaces with the creosote spray, after which a labourer places the new soleplates in position. The 11 labourers who have drawn the spikes, knocked off the fishplates, and moved the rails to the centre of the track, having reached an assigned limit for each set of operations, then return to relay the cropped rails. Eight men carry each rail back with rail tongs, and set it in place, and another inserts the expansion shims. Two others place the fishplates in position, and start the nuts on the four bolts; the nuts art subsequently tightened by the second power-driven bolting machine, worked by an operator and a helper. Two set of gangers, each of three men, follow, first spiking the rails to gauge at every third sleeper, and finally spiking up in full. Two other labourers are used to feed the machines with fuel and water, and to supply drinking water to the gang, and two flagmen complete the personnel.

It has been found that a 10-rail section, on one side of the track only, can be cropped and relaid with the 30-ft. rails in 30 to 40 min. A 5-rail section requires 15 to 20 min., and to allow the passage of trains, if necessary, at short intervals, 15-ft. lengths of rail are carried by the gang temporarily to close the gap at the end of a 5-rail length. The speed of the work naturally depends on the frequency of the train service and on weather conditions; a maximum of 263 rails has been cropped in a single day of light traffic, but the average is about 150; cost has varied from $0.98 to $1.26 for each rail-end cropped, or an average of $1.10, which works out at $2.20 for an entire rail. The ordinary surfacing gangs follow the rail-cropping gang, first lifting the track 3 to 4 in. on new ballast, tamping with compressed air tools, unloading additional ballast to dress the track to the standard 14 ft. cross section, and finally cleaning and dressing the ditches. In a year, 42 miles of track have been successfully reconditioned in this way.

MEMORIAL TO SIR WILLIAM CHAMBERLAIN.—A committee representing all branches of transport in the North Western Region was formed in June to establish a permanent memorial to Sir William Chamberlain, Regional Transport Commissioner for the North Western Region, who died last May. A circular letter has been issued inviting subscriptions to create a fund, the proceeds of which would enable road transport scholarships or educational grants to be given to persons engaged, or intending to be engaged, in the road transport industry in the North Western Region. The minimum sum desired is £5,000. It is hoped that the subscription list will be fully representative, and both large and small gifts will be equally welcome. Cheques should be made payable to "The Sir William Chamberlain Memorial Fund Account," crossed "Martins Bank Limited, Old Trafford, Manchester," and sent to Martins Bank Limited, Old Trafford, Manchester, 16, or to Mr. A. E. Babbs, Honorary Treasurer, care of Butcher & Barlow, Northern Assurance Buildings, Albert Square, Manchester, 2.

SAMPLING AND ANALYSIS OF COAL AND COKE.—In 1942 the British Standards Institution issued two specifications (B.S. 1016 and 1017) dealing with the sampling and analysis of coal and coke for general industrial purposes. These superseded a number of earlier specifications, but not B.S. 735: 1937, although it was stated that, where desired, the improved methods of analysis laid down in the new specifications might be substituted for those in B.S. 735. The Institution has now published a revision of B.S. 735 (Sampling and Analysis of Coal and Coke for Performance and Efficiency Tests on Industrial Plant), and the statement is no longer valid that the methods of analysis given in B.S. 1016 may be substituted for those in B.S. 735. Copies of the revised specification are obtainable from the Publications Department of the Institution, 28, Victoria Street, S.W.1, price 5s.

SOLOTHURN - ZOLLIKOFEN - BERNE RAILWAY.—Except in the case of goods traffic, record results were attained by this Swiss private railway company in 1943. The number of passengers conveyed was 2,920,000, compared with 2,610,000 in 1942; the amount of luggage carried was 2,500 *tonnes* (2,100 *tonnes*); and livestock numbered 4,500 heads (3,800 heads). For the first time in recent years there was a decrease in goods traffic, which accounted for 97,800 *tonnes*, against 101,000 *tonnes* in 1942. Total working receipts in 1943 were fr. 2,019,900 (thereby exceeding for the first time in the company's history the two-million mark), compared with fr. 1,816,200 in 1942. Working expenditure amounted to fr. 1,451,000 (fr. 1,293,000), and the working surplus to fr. 568,900 (the best ever attained), compared with fr. 523,200. The 1943 profit and loss account closed with a favourable balance of fr. 138,285, compared with fr. 504, reducing the unfavourable balance accumulated in former years from fr. 1,519,229 to fr. 1,380,944.

Electric Butt Welding Plant at Doncaster Works, L.N.E.R.

Balancing equipment developed by Johnson & Phillips Limited

A LARGE automatic resistance butt welder of 200 kVA capacity and capable of welding sections up to 13 sq. in. has been in use in the Doncaster Works of the London & North Eastern Railway for some years, and this machine was connected across two phases of a 400-V. 3-phase supply cable. When working at full capacity, a rapidly fluctuating current up to a maximum of 700 A. was taken from each of two phases whilst the current in the third phase was zero. It has always been unsatisfactory to connect a large single-phase load to a 3-phase supply system, because of the unbalanced conditions which are imposed on the system and the consequent loading up of two phases whilst the third phase may have no load on it, but at the time this welder was installed there was no satisfactory alternative.

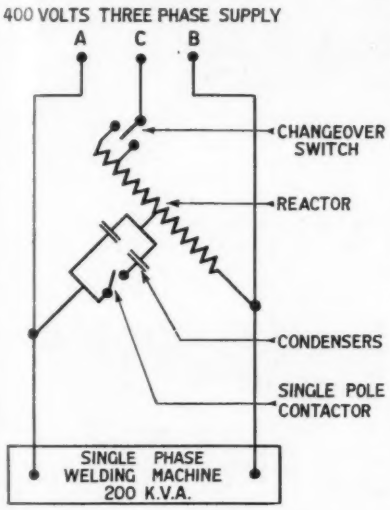


Diagram showing arrangement of reactor and condensers

Some months ago, because of the proposed installation of additional machines in the area in which the welder was situated, it became imperative to consider an increase in the capacity of the supply cable. It had been noticed in the technical press that Johnson & Phillips Limited had developed a balancing equipment which had proved satisfactory on steady single-phase loads, such as furnaces, and so on, and before ordering additional supply cable it was decided to investigate the possibility of this equipment being adapted to suit the rapidly fluctuating load produced by automatic welding. Johnson & Phillips Limited was asked to consider the question.

Test results were extremely satisfactory and showed that the enterprise was fully justified; a balancing equipment consisting of two condensers and a reactor finally was installed. The results obtained, which are given below, have exceeded expectations:—

(*a*) The maximum current loadings in the 3 phases are now as shown, thus enabling the cable to carry an additional 150/200 kVA.

Material being welded	Before installed	After installed
Mild steel 3·625 in. × 3·625 in. = 13·14 sq. in.	—	—
Maximum current—		
Phase (*a*)	700 A.	380 A.
Phase (*b*)	700 A.	420 A.
Phase (*c*)	0 A.	225 A.
Voltage variations	15 V.	5 V.

(*b*) The voltage variation has been reduced from 15 V. to 5 V.

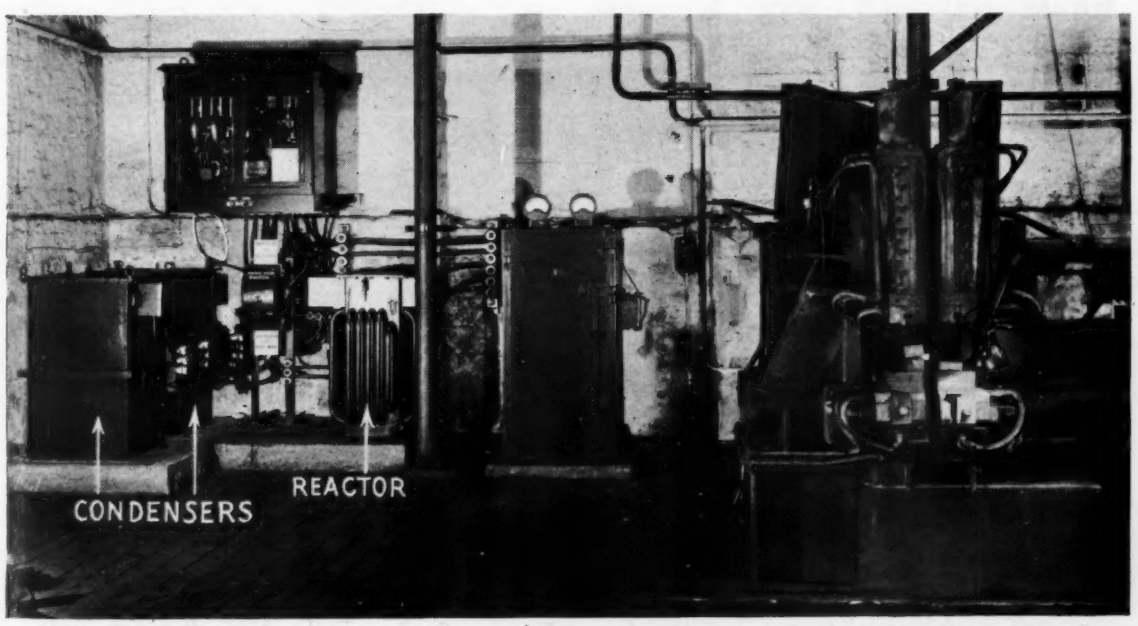
(*c*) The times occupied in the actual welding processes have been reduced by approximately 25 per cent.

(*d*) The necessity for laying a new supply cable and for installing additional switchgear has been eliminated.

It is appreciated that this method of balancing a steady single-phase load on a 3-phase system has been in use for some considerable time, but it is understood that this is the first instance in which the method has been applied satisfactorily to the very heavy fluctuating load such as is obtained when using a large butt weld. When designing balancing equipment for this fluctuating type of load, care must be taken to ensure that whilst obtaining a reasonable balance at the maximum load, the current in any phase at no-load is not excessive.

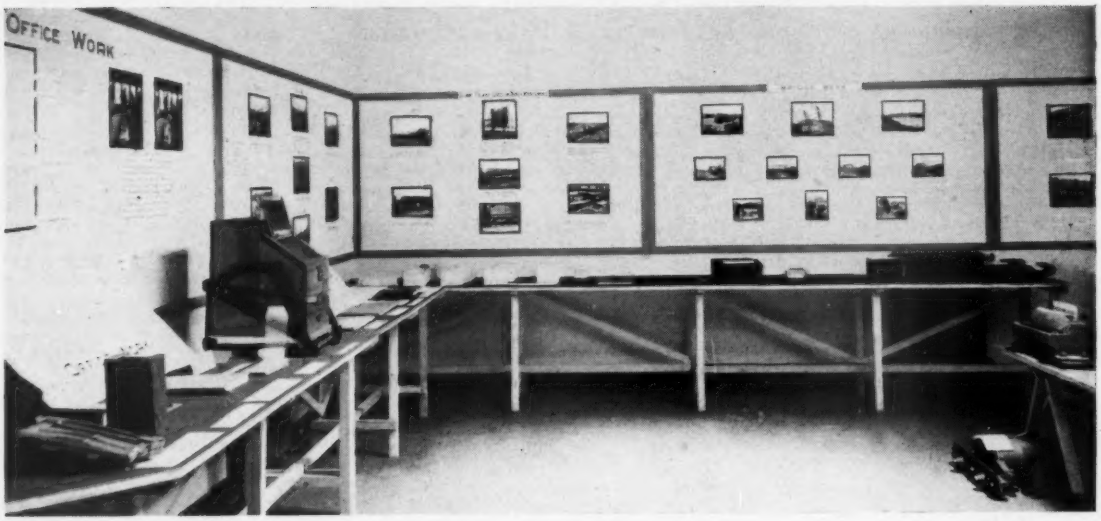
When welding light sections one condenser is in circuit, and both condensers are in circuit when dealing with heavy sections. The reactor is fitted with a "tap-changing" switch for the same reason. The two condensers that have been installed are shown in the attached photographs and diagram.

SYNTHETIC RUBBER IN RUSSIA.—Officials of E.I. Du Pont de Nemours & Co. announced recently that the company is making available to the Soviet Union its process for making neoprene synthetic rubber, as a result of negotiations requested by the U.S. Government. No compensation for the production of neoprene will be asked of the Soviet Union while that nation is at war against Germany. Post-war compensation for the production of the rubber will be based on the volume of Soviet production. The agreement provides that full technical details for building and operating plants to produce neoprene, including specifications for raw materials, will be available to the People's Commissariat of the Soviet Rubber Company.



General view of electric butt welding plant and balancing equipment at Doncaster Works, L.N.E.R.

Permanent Way Exhibition at Paddington



General view of one corner of the first of the public exhibitions of photographs, track components, and permanent way tools which are being staged throughout the country in connection with the Diamond Jubilee of the Permanent Way Institution

Close-up view of one of the stands. This exhibition was opened at Paddington Station, G.W.R., on June 30, by Mr. V. A. M. Robertson (Chief Civil Engineer, Southern Railway), the President of the P.W.I. *(See our July 7 issue, page 21)*

RAILWAY NEWS SECTION

PERSONAL

Mr. E. W. Steele and Mr. T. Fraser have been elected Directors of Metropolitan-Vickers Electrical Co. Ltd. Mr. Steele recently was appointed General Manager of Works to the company.

Mr. J. M. Wildsmith, who, as recorded in our July 7 issue, retired on June 30 from the position of District Goods Manager, Newport, Great Western Railway, joined the Traffic Department in the Bristol area in 1898, and there gained experience both at stations and in the Divisional Superintendent's Office. In 1913 he was transferred to the Chief Goods Manager's Office, and eight years later was appointed Chief Clerk to the Cardiff District Goods Manager. In 1930 he was promoted to the post of Assistant District Goods Manager, London, and, on the absorption of the Reading into the London Goods District, took up headquarters at Reading, where his duties were mainly confined to the western part of the London District. Mr. Wildsmith was appointed to the position from which he has now retired in 1935. During the war he has been a member of the Newport Port Emergency Committee and other important committees.

Mr. J. M. Wildsmith

District Goods Manager, Newport, G.W.R., 1935-44

A portrait and biography of Mr. C. E. Shaw, formerly Goods Agent, Birmingham, Great Western Railway, who has succeeded Mr. Wildsmith (above) as District Goods Manager, Newport, appeared in our issue of January 21 last.

Mr. C. J. Hanratty, Assistant Manager of the Canadian National Railways Press Bureau, has retired. He joined the C.N.R. in 1924, and in 1929 was transferred to London in charge of European publicity and advertising. Later he became Publicity Representative for the company in the central and western regions of the U.S.A., but returned to the head office in Montreal in 1939. For a short time in 1940 he was Press Censor for Canada, but illness forced him to relinquish that post.

Mr. R. Restall, Assistant Divisional Engineer, London West Division, Southern Railway, who, as recorded in our July 21 issue, has been appointed Production Assistant to Maintenance Engineer, received technical training at the South Western and Regent Street Polytechnic Engineering Schools, and then joined the London Office of Braithwaite & Co. Engineers Ltd. In 1924 he joined the Southern Railway as a draughtsman in the London East Divisional Engineer's Office, and served in that capacity until 1927; during that period he was engaged on electrification on the Eastern Section, and acted as Resident Engineer on the Cannon Street and Charing Cross alterations. He received an appointment with the Buenos Ayres Great Southern Railway in 1927, and returned to the Southern Railway in 1928, when he entered the Chief Engineer's Office (New Works Section). He became engaged as Resident Engineer on the Lewisham New Loop Line and the reconstruction of Hastings Station. In 1933 Mr. Restall transferred to the London West Divisional Engineer's Office for maintenance of bridges; and in 1936 he was made Chief Technical Assistant to Divisional Engineer; he was appointed Assistant London West Divisional Engineer in October of the same year.

Mr. R. Restall

Appointed Production Assistant to Maintenance Engineer, Southern Railway

Brigadier G. S. Harvie Watt, M.P., has been appointed a Director of the Birmingham Small Arms Co. Ltd. He is a Director of the Great Western Railway Company.

We regret to record the death on July 14, at the age of 68, of Colonel Richard Oakes, C.B., C.B.E., late Royal Engineers. After serving in the South African War and being mentioned twice in dispatches, he joined the Central South African Railways and became District Locomotive Superintendent, Pretoria. During the war of 1914-18 he was mentioned twice in dispatches, and for his services he was made C.B.E. in 1919. He was appointed Chief Mechanical Engineer, War Office, in 1917, but later in the same year became Deputy-Director, Mesopotamian Railways, which post he held until 1920. Thereafter he served as Deputy Engineer-in-Chief, India; Assistant Director of Transportation, War Office; and President, Royal Engineer Board. He retired in 1931, in which year he was made C.B.

We regret to record the death on July 19, at the age of 83, of Mr. Charles Heyland Fox, M.Inst.C.E., who retired in 1936 from the Senior Partnership in Messrs. Fox & Mayo, consulting engineers. He was the second son of the late Mr. D. M. Fox, who was responsible for the construction of, and later became Superintendent & Chief Engineer to, the San Paulo (Brazilian) Railway. Mr. C. H. Fox entered the railway engineering field in 1877, when he was employed in the works of the San Paulo (Brazilian) Railway under Mr. John Barker. In 1878 he became a pupil of Mr. William Stroudley in the Brighton Works of the London Brighton & South Coast Railway. Four years later Mr. Fox was appointed Assistant Engineer under Mr. W. Ridley, on the construction of the Brazil Great Southern Railway. From 1885 to 1889 Mr. Fox was Assistant Engineer & Assistant Locomotive Superintendent of the San Paulo (Brazilian) Railway. He returned to England in 1889, and joined his father, who in 1878 had established the business of consulting engineers in London associated with his name. Mr. C. H. Fox had since been connected closely with engineering developments on South American railways.

The late Mr. C. H. Fox

Formerly Senior Partner, Messrs. Fox & Mayo, Consulting Engineers

Mr. John Rankin, Stationmaster, Glasgow (Central), L.M.S.R., who, as recorded in our July 21 issue, is retiring at the end of this month, after 53 years' railway service, commenced his career with the former Caledonian Railway as signal-box book marker at Newton. A wide experience on the traffic side of that system led up to his appointment in 1912 as Goods & Mineral Train Inspector in the District Superintendent's Office at Glasgow (Central). After a period as Traffic Inspector in the Aberdeen District, he returned to

Glasgow (Central) as Assistant Stationmaster in 1918; and seven years later he became Stationmaster at Perth (General). Mr. Rankin was appointed to the position from which he now retires in 1937.

Mr. John Rankin

Stationmaster, Glasgow (Central), L.M.S.R., 1937-44

Mr. W. P. Allen, General Secretary, Associated Society of Locomotive Engineers & Firemen, and Mr. John S. Boyd, formerly Assistant to Superintendent, North Eastern Area, L.N.E.R., have been appointed members of the committee set up by the Government to inquire into the relation, both in industrial and non-industrial cases, between claims to security benefit and claims for damages in respect of personal injury caused by negligence; and to review the law governing the liability of employers to pay damages or compensation for industrial injury independently of the Workmen's Compensation Acts.

The King, at Buckingham Palace, on July 4, conferred the honour of Knighthood upon:—Lt.-Col. John Alexander Dunnington-Jefferson, D.S.O., Deputy Chairman, Derwent Valley Light Railway Company; Mr. Mark Frank Lindley, C.B., LL.D., Comptroller-General, Patent Office; Mr. Simon Marks, D.Sc., a Member of British Overseas Airways Corporation; Mr. Eustace James Missenden, O.B.E., General Manager, Southern Railway Company; and Mr. John William Lambton Oliver, C.B., C.B.E., Deputy Director-General, Equipment & Stores, Ministry of Supply.

SOUTHERN RAILWAY APPOINTMENT

The Southern Railway announces that Mr. A. H. Rampton has been appointed Assistant to the Superintendent of Operation for Road Transport from July 1, *vice* Mr. A. B. Potter, retired.

We regret to record the death on July 11, at the age of 60, of Mr. Herman J. Sarstedt, formerly Assistant Locomotive Superintendent, Bombay, Baroda & Central India Railway, who retired in 1939.

According to a German broadcast, Hitler has awarded the Knight's Insignia with Swords to the Order of Merit to Dr. J. Dorpmüller, German Minister of Transport and General Manager of the German State Railway, "for the personal part he played in organising railway traffic on the invasion front."

Mr. Thomas Tinning, Stationmaster, Glasgow (St. Enoch), L.M.S.R., who, as recorded in our July 21 issue, has been appointed Stationmaster, Glasgow (Central), entered the service of the former Caledonian Railway as a signal box lad at Greenhill Lower Junction in 1905. After serving at various stations as a junior and booking clerk he was transferred to the District Superintendent's Office, Glasgow, as clerk; thereafter he received appointment as relief clerk. On the grouping of the railways, Mr. Tinning was transferred to the Operating Manager's Office, Glasgow, as Head Office Inspector. In 1932 he was appointed Assistant Stationmaster, Glasgow (Central), and in 1939 was promoted to be Stationmaster, Glasgow (Buchanan Street). His appointment as Stationmaster, Glasgow (St. Enoch), was made two years ago.

Mr. Thomas Tinning

Appointed Stationmaster, Glasgow (Central), L.M.S.R.

Sir Harry Railing has been elected President, and Mr. W. J. H. Wood Vice-President, of the Institution of Electrical Engineers. Sir Harry Railing is Chairman & Joint Managing Director of the General Electric Co. Ltd.

Signal & Telegraph Technical Society (Liverpool Branch) in 1939

Members of the Signal & Telegraph Technical Society (Liverpool Branch) at Birkenhead, July 1, 1939

In the second row from the front (eleventh from the left—holding hat) is Mr. H. E. Morgan, Founder and now President of the Society, Divisional Signal & Telegraph Engineer, Crewe, L.M.S.R.; and on his left is Mr. James Boot, who was President of the Institution of Railway Signal Engineers, 1939-43 (*See editorial article, page* 80)

TRANSPORT SERVICES AND THE WAR—252

Special School Trains

Schools were asked by the Ministry of War Transport to close for the summer holiday not later than today (July 28) The railway companies were authorised to provide special trains on any day up to and including this date in cases where the numbers of pupils justified trains, and where there was no room for them in the ordinary services.

Bank Holiday Travel Restrictions

The Ministry of War Transport has announced that no additional long-distance trains will be run during the August Bank Holiday week-end, nor will there be any special road services to facilitate holiday travel.

Free or assisted travel under the various Government-assisted travel schemes, other than any evacuation scheme that may be in operation at the time, will be generally suspended on Friday, August 4, to Tuesday August 8, both days inclusive.

Civilian Air Raid Casualties in June

The Ministry of Home Security has announced the following figures of civilian casualties due to air raids in the United Kingdom during June:—

Killed (or missing believed killed)	1,935
Injured and detained in hospital	5,906

The casualties are classified as follow:—

	Men	Women	Under 16
Killed (or missing believed killed)	716	988	231
Injured and detained in hospital	2,151	3,262	493

Deep-Level Tube Tunnel Shelters

The second of the deep-level shelters was opened on the evening of July 13, and the third on July 16. The arrangements are on the same lines as those adopted for the first of these tube shelters.

Canteens have been arranged at which tea may be purchased at 1½d. a cup, and sandwiches and cake are also available. Washing facilities and lavatories are generally regarded by the shelterers as excellent. Bed clothes can be washed and dried on the same day at a cost of 8d. for a blanket, 3½d. for a sheet, and 2½d. for a pillowcase.

There are same 24 charwomen at each shelter, who clean the place daily. Both they, and other employees and workers, totalling some 300 for each shelter, are given priority right of sleeping in the shelter where they work.

The main adverse criticism has been the lack of heating; no heating provision has been made.

A Busy Month

The four weeks after the invasion of France on June 6 ("D" Day) were the busiest so far for the British railways, according to a statement of the Railway Executive Committee. During that period new records were created by the running of 17,500 special troop and stores trains carrying reinforcements and supplies for the fighting fronts. This is an increase of 33 per cent. over the month preceding the "D" Day operations, when some 13,000 special military trains were operated. A further 113 special trains were run exclusively for the carriage of military mails and parcels, and more than 300 journeys were made by special ambulance trains. In addition, special trains were necessary to convey large numbers of German prisoners of war to prison camps throughout the country. These movements had all to be superimposed upon the normal day-to-day services, which, during the period under review, included the despatch of more than 3,500,000 loaded wagons, the operation of some 25,000 special trains carrying war workers to Government factories, the running of 4,000 block coal trains direct from the collieries to the consuming areas; and (in the fourth week) the beginning of the official evacuation from the London area.

London Area Evacuation Traffics

The peak of the record-breaking month for British railway traffics, to which reference is made in the previous paragraph, came during the fourth week when the railways were called upon to handle the transport side of the official evacuation from the London area. During the first seven days of this evacuation, 175 special trains left the main London termini carrying mothers and children to the safety of the countryside. (*See editorial article, page* 79).

Harvest Transport

Comprehensive plans have been made to meet transport difficulties in gathering this year's grain crops and conveying workers to and from the farms. The larger acreage of crops to be harvested this year by combine, and the road transport absorbed by military operations, will mean that more grain will require to be moved during the peak period, with less transport to move it. The plans involve the co-operation of the Ministry of War Transport, C.W.A.E.Cs., the Services, N.F.S., Civil Defence, and Local Authorities, the farmers, and road hauliers. To achieve this, the Regional Transport Commissioners are arranging meetings with all the interested parties. The outline of the arrangements is as follows: First, farmers must make the maximum use of their own transport and also help their neighbours. The concession made in last year's Finance Act enables farmers to use their tractors for carting both their own grain and that of other farmers. An Order has been made allowing "F" licensed lorries to be used in connection with the harvesting of crops for neighbouring farmers between July 15 and November 30. The next approach should be to the local haulier, and, failing him, to the Officer Commanding any Army (including Canadian and U.S.A.) or R.A.F. unit in the district. If the facilities from these sources are insufficient, farmers should then approach the Sub-District Manager of the Ministry of War Transport, who can call on the N.F.S., Civil Defence, and Local Authority to loan vehicles or arrange for assistance from other areas.

To ease the burden on the already-depleted public rail and road facilities for the conveyance of workers, an Order has been made relaxing restrictions on goods vehicles carrying workers to the fields until the end of November. This will enable farmers, and also commercial undertakings and public bodies, to use their lorries to take parties of workers to and from the farm. The vehicle must, of course, be properly insured for this purpose, and motor vehicles insurers have agreed to provide special cover. Business firms wishing to use their lorries in this way should notify the Sub-District Manager of the Ministry of War Transport if possible two or three days beforehand, and apply at the same time for any additional petrol coupons required. In some districts private car owners are organising volunteer car pools, in collaboration with the County Committee, for taking workers to farms over week-ends and during the evening. The scheme includes the transport of volunteers to agricultural camps, and C.W.A.E.Cs. will work out with the railway companies the best arrangements for travel where difficulties are likely to be met.

Northern Busmen's Offer to London

Bus, tram, and trolleybus crews from the Corporation transport systems of both Manchester and Sheffield volunteered to exchange with their opposite numbers in London in order to give the latter a rest from the strain of working through the flying-bomb attacks. Such a scheme would entail a number of problems, as working conditions in the North are different from those in London, in respect of such matters as driving schedules and rates of pay. Moreover, the provincial crews would be strangers to London routes and London fares. Nevertheless, the kindly offer was considered very gratefully, but was declined after representatives of the London Transport staff had expressed their desire to carry on without this extra relief.

Troops as Locomotive Crews

Several hundreds of men from the R.A.F. and the Royal Navy, and still larger numbers from the Army, have been released for an initial period of three months to make up locomotive crews on British railways. The additional requirements of railway transport for the Western Front have added to the serious manpower shortages of locomotive staffs. Both the Army and R.A.F. men will be in uniform, and will continue to receive Service pay and allowances; but Naval men are being placed temporarily in the Naval Reserve and will work as civilians, receiving normal pay for the work. All these recruits from the Services are volunteers, and not all are former railwaymen. They are receiving preliminary training as cleaners in locomotive sheds, and will then pass out as firemen. It is understood that the man-power position will be reviewed at the end of three months.

Odessa Trams Running

The tramway service in Odessa has been reopened, according to a Reuters message of July 18.

German Travel Ban

In connection with the German ban on rail travel, as from July 17, excepting by special permit, it is reported from Stockholm that permits for East Prussia are being granted only in very exceptional circumstances.

Troop Trains from Norway

According to Free Norwegian messages, five troop trains have been running daily since July 4 from Trondheim to Oslo, withdrawing German troops from Norway. All ordinary trains on the Trondheim-Hamar section of this route are said to have been suspended.

Turkish Gauge Conversion

The Turkish Government decided recently to convert to standard (4 ft. 8½ in.) gauge the 2 ft. 6 in. gauge line between Erzerum and Sarikamish. The work will entail widening several tunnels. The Sarikamish-Kars-Leninakan line, having been built by the Russians, is of the 5 ft. gauge.

Tram-Towed Lorries in Germany

Motor lorries loaded with war supplies are reported as being towed by electric tram through many German towns to save liquid fuel. By a Decree issued by Hitler on July 13, the German Ministry of Transport was given wide powers of requisitioning all forms of civilian transport to aid the war effort.

Soviet Railwaymen in Wartime

By Engineer S. Alterman of the U.S.S.R. Railways

When the Germans made their treacherous assault on the Soviet Union, they were confident they would be able to disorganise the work of the Soviet Railways. *Deutsche Wehr*, the German military journal, wrote: "The situation of the railways of the Soviet Union . . . . may have catastrophic results for the mobilisation and prosecution of the war." But everyone now knows that this hope of the enemy, like many others, fell through, for Soviet transport passed through its long stern test with credit.

Camouflaged unit of a Soviet armoured train

In the early days of the war, Soviet railways had to carry heavy loads in connection with mobilisation, and the transport of reserves and stores to the front. In addition to this, the railways had to cope with an evacuation unequalled in history, when millions of persons, and thousands of industrial enterprises with all their machinery, were shipped deep into the interior of the country. To give some idea of the scope of this task, it is sufficient to mention that during the early months of the war the railways transported more than 1,300,000 wagons of stores to the interior of the country. Mountains of equipment, material, and grain, and thousands of persons fleeing from the Germans, were carried from the west to the east.

When the enemy raced for the vital centres of the Soviet Union, the railwaymen worked shoulder to shoulder with the Red Army. Under the most harassing conditions they transported everything needed by the army at the front, and, when the need arose, they actually took up arms. Thousands of railway workers in Moscow, Leningrad, and the Donetz Basin joined the People's Guard or the armoured train crews, and showed fine examples of heroism and courage in battle.

Railwaymen played an important part in the defeat of the Germans at Moscow. Hundreds of trainloads of troops, armaments, and ammunition had to be brought to Moscow in a very short time, and a large part of this had to come thousands of kilometres. Another difficulty was the continuous stream of evacuation trains to the east. But they carried out the job, covering 800 to 1,000 km. a day, despite heavy enemy air raids and artillery fire, and the enemy did not succeed in seriously hampering the railway communications at the front. The loads came in uninterruptedly in accordance with the plans of the Command, and the concentration of some formations was even completed ahead of schedule.

During the second half of 1942, almost all the main lines connecting the centre of the country with the south and the Caucasus were cut by the enemy. The seizure of the Donetz Basin deprived the railways of their main supply of coal. By devious ways, frequently over poorly-developed lines, the railways kept up a continuous supply of oil, armaments, food, and ammunition for the army at the front.

The story of the railwaymen's part in the defeat of the Germans at Stalingrad is filled with examples of skill and courage. The enemy made tremendous efforts to paralyse the work of the Stalingrad railway system, and there were times when the enemy bombed the junction sixteen and seventeen times a day. The telegraphs, station roundhouses, and other installations were put out of action. Nevertheless, the trains continued to run to the last moment, carrying their loads within the bounds of the junction. Two new railways to Stalingrad were built in an amazingly short time. One locomotive driver drove his train to the front for eighteen consecutive days; the train was frequently fired on and survived 20 air raids. The railways not only supplied everything needed for defence, but at the same time brought up huge reserves of fresh troops with all their equipment, for the colossal operation of surrounding and destroying the German Stalingrad army group. Some idea of the tremendous extent of this operation may be gathered from the fact that on November 19, 1942, the first day of the offensive, Soviet artillery at Stalingrad fired 689,000 shells, for the transport of which upwards of 1,300 railway wagons were required.

Wide publicity has been given to the privations suffered by the people of Leningrad during the many months the town was besieged by the enemy. Again the railways had to work under the greatest difficulties. Terrible hunger, extreme cold, and constant artillery and aerial bombardments were the conditions under which they assembled and drove their trains. In addition to driving the trains, they themselves obtained the fuel for their locomotives. When there was no water in the stations, they filled their tanks with buckets of water brought from the river. When the ring of encirclement was broken in January, 1943, the railwaymen kept their trains running for a whole year along a line a few kilometres from the front, which the people of Leningrad called "The Valley of Death." Despite all this, the railwaymen kept the army and the town supplied, and at the required moment brought up reserves of troops, equipment, and ammunition for the decisive blow to the enemy, who had dug himself in under the walls of Leningrad.

The offensive which developed on the Soviet-German front greatly increased the

Armoured train for the Red Army, built by the overtime work of a Moscow railway depot. The Russian inscription means "Death to the German occupationists"

amount of traffic the railways had to carry. Nevertheless, reserve troops and ammunition were brought up in good time for the offensive operations in the Donetz Basin, the Ukraine, and on the Orel and Bielgorod sectors. Then the railway lines were rebuilt behind the advancing troops, ensuring constant communications between the front and the rear. When the Germans retreat under the blows of the Red Army, they destroy railway installations on a scale unknown in any previous wars. A preliminary estimate of the damage caused to Soviet railways puts the figure at over 20,000,000,000 roubles. On some railways hardly a single roundhouse, pumping station, coal yard, workshop, bridge, or station siding remained intact, while the main lines were either dismantled and the rails taken away, or blown up, and the rails so twisted and torn that their use for rebuilding was out of the question.

So far, more than 30,000 km. of railway, 2,500 stations and wayside halts, and thousands of bridges have been repaired. Hundreds of roundhouses and wagon depots, water supply stations, and electric power stations have been rebuilt; 33,000 km. of telegraph line (with 250,000 km. of wire) have been built almost completely anew. During the first four months of this year, 300 bridges were either built or repaired, including some large bridges over the Rivers Dnieper, Pripet, and southern Bug. Examples of the speed with which bridges have been restored are provided by one 1,387 metres in length which was built in 37 days, and another 1,100 metres long which was built in 13 days.

As a result of the fine work of the Soviet railwaymen, and the help given by the civilian population, almost all the railways in the liberated regions are now open for traffic. Quite apart from the railways in the vicinity of the front, many railways in areas well to the rear have had to carry additional traffic, in some cases employing many times the number of trains they carried in pre-war days. Traffic on the Ural railways, for example, has been almost trebled since the war began, and the loads delivered are items of great importance such as metal, coal, timber, and ore.

Much of the success achieved by the Soviet Railways is due to the initiative and experience of leading railway workers, who have devised new methods of work, and organised competitions to improve the help they were giving to the army at the front. Many valuable proposals have come from locomotive drivers, dispatchers, shunters, and platelayers. All this has helped the railways to mobilise their internal resources and thus relieve the factories producing railway equipment; the latter were therefore able to increase their output of goods for the front. The Soviet people fully appreciate the work of the railwaymen, and call them "brothers of the gallant Red Army."

Parliamentary Notes

L.M.S.R. Bills

The House of Commons resumed consideration of the London Midland & Scottish Railway Bill on July 20.

Major Sir Edward Cadogan (Bolton—C.) said he was authorised by the four main-line companies to make a suggestion which might enable the two Bills to proceed, enable the matter in dispute to be resolved, and open the door to further negotiations. The main point at issue was whether the employees of the railway companies, with salaries above a certain level, should be paid in accordance with their merits and abilities in relation to their posts, or whether they should be paid in accordance with fixed scales negotiated with the trade unions. He pointed out that the Railways Act of 1921 established negotiating machinery between the railway companies and their employees, and the position today was that there was an agreement with the Railway Clerks' Association and other unions recognising that body as substantially representing the categories of employees who were in receipt of a salary of £360 a year. Though he mentioned that figure, he meant £360 a year exclusive of the advances paid on account of the war. He thought the proper figure would be £426 a year. The Railways Act specifically excluded those who were paid above £360 for negotiating purposes, although there was machinery for discussion.

The first claim of the Railway Clerks' Association was to negotiate for the whole of the professional and technical staff, and the second was to negotiate salary scales, not only for the professional and technical staff, but also for all the staff which was in receipt of salaries from £360 to £600 a year. Three years ago the companies recognised the Railway Clerks' Association as representing the technical and professional staff, for discussing complaints which could not be settled through any other channel. To that the Railway Clerks' Association agreed, and later in the same year the special class was made the same offer, which was accepted. In May, 1943, the Railway Clerks' Association submitted a very comprehensive programme for improved conditions for the staff, which also included the claim to negotiate for the fixation of scales of pay, up to those in receipt of a salary of £600 a year. The railway companies in response to that claim, asked that the numbers in each group that the Railway Clerks' Association claimed to represent should be furnished. That the Association refused, or said it was unable to do, but the companies thought that was a reasonable preliminary, and, after a certain amount of correspondence, suggested that the Railway Clerks' Association should supply to the Minister of Labour the number of the staff in the 16 groups which it claimed to represent, as specified in a letter which he thought was read to the House early in the previous debate. At a later meeting the following offer was made by the railway companies. First, as to the professional and technical staff, full and unconditional recognition was to be given for negotiating purposes, as concerned all those of the staff in receipt of salaries up to £360 a year. The second part of the offer was, subject to the Minister of Labour's certificate, that the Railway Clerks' Association substantially represented the staff as defined in each of the three groups in receipt of salaries from £360 to £600 should have recognition for negotiating purposes except as to the fixation of scales of salary. That, of course, was the main point at issue. As to the special class, the offer of the railway companies was that similar arrangements should apply to those in receipt of salaries of £360 to £600, subject to agreement with the other trade unions concerned, in respect of the sections already covered by the agreement.

That was the commencement of the negotiations up to date, but it was not quite the end of the story. The railway companies claimed that they should be satisfied concerning the representative character of the Railway Clerks' Association. The railway companies had offered to reduce the categories of professional and technical staff to three large groups. The second point, which was more substantial still, was that the railway companies found great difficulty in negotiating, as distinct from discussing, with the Railway Clerks' Association in respect of salaries for staffs above £360 a year. There was a differentiation specifically recognised in the Railways Act, 1921, as that Act provided in terms for the exclusion of the special class. The companies offer covered something like two thirds of the total of the professional and technical staff, which numbered, in the four main-line companies, about 400.

He was speaking for the four main-line companies and he was authorised by them to make a suggestion. He trusted it would be received in the spirit in which it was made, the spirit of conciliation. He believed that it was the general sense of the House that this matter should be disentangled on these two Bills. He was authorised to say that, notwithstanding that there was excluded from the offer the question of the fixing of scales of salaries, the railway companies would be prepared to refer to the Chairman of the Railway Staffs National Tribunal, the question of principle as to whether the fixing of scales was desirable and practicable, in respect of the professional and technical staff in receipt of salaries over £350 and up to £600. He hoped that would be acceptable to the Member who raised the issue in the previous debate.

Mr. F. C. Watkins (Hackney Central—Lab.) said they were not differing about salary scales, their point was the simple one of recognition, whether the company would recognise the Railway Clerks' Association as the trade union to negotiate a settlement about working conditions for the men in the professional and technical classes. The Association had the majority of those people in its membership. It had declared it to the railway company. It had given them an assurance on the point, and felt that, having given it, the company should say "Very good, we will recognise you and we will proceed to negotiate along the lines of your suggestion." The talk about the Railways Act, 1921, was beside the point. The professional and technical people were in a special and exceptional class in the railway service. They were a highly-paid class in comparison with the ordinary railway clerk. Thirty-eight per cent. of them were getting more than £360, whereas only five per cent. of the railway clerks earned above that figure. They had asked the Railway Clerks' Association to negotiate a settlement about conditions.

After the previous Debate, after many days, the railway company invited the Railway Clerks' Association people to meet it and made the offer referred to. The company agreed to recognise the R.C.A. as the negotiating trade union for all these people up to £360 a year. Then the R.C.A. was asked to split them into categories and to get a certificate from the Ministry of Labour for each of the categories to prove that it had a substantial number before negotiations could begin. That was a new thing in railway trade union experience; no trade union had ever been asked whether it had a majority in the union. Mention had been made of referring to the chairman of the Railway Staff Conference the question of the fixation of scales. The R.C.A. did not say that scales of salaries must be

fixed, but it did say it had a right to discuss whether scales of salaries should be fixed and not go into negotiation with an absolute negative against their being fixed.

Mr. Watkins said that Major Sir E. Cadogan wanted to remove this matter from the House of Commons and get it settled. So did the R.C.A. He was prepared to make a suggestion, and he hoped members, on behalf of the railway companies, would accept it. The R.C.A. was prepared to accept the decision of the Ministry of Labour on whether or not recognition should be afforded to the Railway Clerks' Association to negotiate with the railway companies for the professional and technical grades up to £600 a year. The companies took one view, and the R.C.A. took another. The R.C.A. would take a third party judgment on it, and let the Ministry of Labour decide; it would accept the Ministry of Labour's finding whatever it was, and he hoped the railway companies would, too.

Mr. N. B. Goldie (Warrington—C.) said he was a stockholder in the L.M.S.R. Company, and he was also associated to a small financial extent with the G.W.R. Company. He had been approached by the Railway Clerks' Association and asked to do what he could to help.

Mr. G. Mathers (Linlithgow—Lab.) said that postponing the Bills at the present moment would mean, for all practical purposes, that they would be lost to the House and to the railway company for this session. The object of the R.C.A. in raising the matter had never been to attack these Bills vindictively, or to deny the benefits that these Bills would confer on a number of people; but it was the only opportunity it had. It was true that the R.C.A. had recognition given or offered in respect of the professional and technical staffs of the L.M.S.R. with salaries up to £360 a year. That was no real concession at all. It still maintained a bar against the proper functioning of a trade union in respect of a very large number of that section of railway employees. The offer that was made in that connection by the railway company carried into effect only a measure of recognition that was given to the clerical staff 25 years ago. In spite of the excellent negotiating machinery that was available for use in the railway service throughout the country they had a position like this arising that should never arise, that should not be allowed to rise if a reasonable course were taken. There was nothing impossible in respect of according full recognition for negotiating purposes concerning scales between £360 and £600 per annum if only the railway companies be reasonable, and he suggested that the very moderate request of Mr. Watkins, that a decision in respect of recognition should be one taken by the Ministry of Labour, was one below which the R.C.A. should not be asked to go, and as one which, if it did go below it, would mean that it would be denying the proper trade union rights of its members. If the L.M.S.R. and those associated with it in attempting to withstand this claim were not prepared to concede what had been put before them that day, he suggested to the House that would show that the L.M.S.R. and those associated with it to be unworthy to have the powers asked for in these Bills, because of the fact that it was not acting reasonably in respect of powers which it already had.

Sir E. Cadogan, to assist the House, said that the companies would accept the certificate of the Minister of Labour certifying that the Railway Clerks' Association was representative of a substantial number of the grades in question.

Mr. Anderson: Is that said now with the authority of the railway companies or the Railway Executive?

Sir E. Cadogan: The railway companies.

Mr. Watkins thought that statement was very satisfactory, as meaning that when the company received the certificate from the Minister of Labour that the R.C.A. represented a substantial number, negotiations could start forthwith in a free and unfettered way. In those circumstances, he had very great pleasure in asking leave to withdraw his amendment.

This was "That this House declines to proceed with the Second Reading of the Bill until the London Midland & Scottish Railway Company concedes trade union recognition to the professional and technical sections of its employees."

The amendment was, by leave, withdrawn, and the motion for the Second Reading agreed to.

The Second Reading of the London Midland & Scottish Railway (Canals) Bill was also agreed to.

Questions in Parliament

Railways Capital Expenditure

Mr. Ellis Smith (Stoke—Lab.) on July 20 asked the Parliamentary Secretary to the Ministry of War Transport if he could give the total amount of capital expenditure made by the railways since 1939; what was to happen to it in the post-war period; what was the percentage allowed for administration purposes in any extension in pre-war times; what was allowed now; and what was allowed for the extension of sidings and for lines laid in or near Government establishments.

Mr. P. J. Noel-Baker (Joint Parliamentary Secretary to the Ministry of War Transport): The net capital expenditure by the four main-line railway companies during the three years 1940 to 1943 was £7,158,000; the assets represented by it are the property of those companies. In addition, since the beginning of the war, railway works of a capital nature estimated to cost £17½ millions have been financed by my Department; and, pending ultimate disposal, these works remain Government property. As to the second half of the question, each railway company follows its pre-control accounting practice for all overheads, including administration oncosts, so far as its own capital works are concerned. The overheads charged in connection with railway works financed by the Ministry of War Transport represent out of pocket expenses only. The amount charged as overheads for works provided by a railway company for the exclusive use of a Government establishment are negotiated between the departments concerned and the railway company.

Disposal of Railway Profits

Lt.-Colonel G. F. Doland (Balham and Tooting—C.) on July 19 asked the Parliamentary Secretary to the Ministry of War Transport whether it was proposed to regard the profit of, approximately, £129,000,000 made by the Government of the British railways, as being equivalent to the excess profits tax payments of other industrial concerns; and would there be a post-war refund of 20 per cent. to enable the companies to cope with post-war replacement problems.

Mr. Noel-Baker: No, Sir.

Mr. A. Edwards (Middlesbrough East—Lab.): Is it not a fact that this surplus has only accrued as a result of excessive charges and that had there been any question of retaining the profit a costing system would have been imposed, as is the case in producing Departments?

Sir Frank Sanderson (Ealing—C.): Is the Parliamentary Secretary aware that by fixing the railway rental agreement at a figure which does not provide funds sufficient to meet the charge on all the fixed interest bearing securities he has created a classic example for other countries how not to meet their external obligations, and does he not consider that it is a short-sighted policy which reacts against the interests of this country?

Mr. Noel-Baker: Under the agreement the railways get remuneration considerably above anything they earned in peace time.

Mr. E. Shinwell (Seaham—Lab.): The question asks whether the Government are prepared to make concessions to the railway companies and how they propose to dispose of the profit. Is it to be used for the purpose of railway development after the war? Have the Government made up their mind on that?

Mr. Noel-Baker: The agreement contains clauses about deferred maintenance and other things. The profit is paid into the Exchequer.

Co-ordination of Transport

Mr. Ellis Smith (Stoke—Lab.) on July 19 asked the Parliamentary Secretary to the Ministry of War Transport what steps had been taken, or were to be, in order to bring about the complete co-ordination of all transport on a basis of the highest state of efficiency; the utilisation after the war of the vehicles, ships, landing craft, etc., manufactured for war purposes.

Mr. Noel-Baker: The operation of all the means of transport is at present fully co-ordinated by the Minister of War Transport. Peacetime conditions differ from those of war, and arrangements which are advantageous during a war may not necessarily be advantageous in time of peace. Nevertheless, the experience acquired since 1939 will be of great value in dealing with peacetime problems, and Mr. Smith may rest assured that it will not be forgotten. It will, of course, remain the Government's aim to secure the highest efficiency in every form of transport and to make such use as may be appropriate of equipment manufactured for the war.

Mr. Smith: To maintain this co-ordination and the high state of efficiency which have been built up as a result of our war needs, will the Parliamentary Secretary's Department also bear in mind that this can only be maintained on the basis of social ownership?

There was no reply.

Accommodation on Railway Trains

Sir Henry Morris-Jones (Denbigh—Lib.-Nat.) on July 18 asked the Parliamentary Secretary to the Ministry of War Transport what provisions he was making to enable the travelling public to obtain access to lavatories on long-distance trains.

Mr. P. J. Noel-Baker (Joint Parliamentary Secretary to the Ministry of War Transport): Nobody regrets more than I do the present inevitable discomforts of long-distance railway travel, but when a train is so crowded that the corridors are full, I am afraid that I do not, as at present advised, see any practical method of ensuring that all the passengers can reach the lavatories. I am, however, considering what measures, if any, can be taken to deal with the problem.

Sir H. Morris-Jones: Is the Parliamentary Secretary aware that on many long-distance trains the lavatories are occupied by persons who can find no standing space in corridors, and that in the train from Chester to London in which I travelled three soldiers stood inside the lavatory all the way?

Mr. Noel-Baker: Yes, Sir, I appreciate

the great difficulties to which Sir H. Morris-Jones refers. I think the most hopeful measure would be to limit the loading of trains but I should not like to commit myself to that without very full consideration.

Professor D. L. Savory (Belfast University—C.): Would it be possible for these long distance trains to stop for a longer period at the stations, so as to enable passengers in great distress to get relief?

Mr. Noel-Baker: Yes, Sir, that is another measure I am considering, but Professor Savory will realise that it raises a very large matter.

Sir Frank Sanderson (Ealing—C.): Is the Parliamentary Secretary aware that all the windows in the corridors of these long distance trains are sealed—giving no ventilation whatever—and in view of the large numbers of passengers having to stand in trains, would he also see that this is remedied?

Mr. Noel-Baker did not reply.

Reserved Accommodation for M.Ps.

Sir Henry Morris-Jones (Denbigh—Lib.-Nat.) on July 19 asked the Parliamentary Secretary to the Ministry of War Transport whether reservations on certain specified trains travelling to Chester and North Wales during the day might be made by Members of the House.

Mr. Noel-Baker stated in a written answer: Seats are reserved for passengers travelling on urgent business of national importance on certain night trains to Manchester and Liverpool. If there were sufficient demand, I would consider the transfer of this reserved accommodation to day trains serving Manchester, Liverpool, Stockport and Crewe.

Congested Trains

Sir Henry Morris-Jones (Denbigh—Lib.-Nat.) on July 13 asked the Parliamentary Secretary to the Ministry of War Transport whether he was aware of the present conditions of travel in the North-Western areas, particularly at Crewe, Chester, and North Wales coast stations; and what provisions he was making to enable officers and men of the services to secure entrance and egress to and from congested compartments and train corridors.

Mr. P. J. Noel-Baker (Joint Parliamentary Secretary, Ministry of War Transport) stated in a written reply: I am aware that there has been congestion at Crewe, Chester and other stations, and on the trains in the North-Western area. I am informed that this congestion has been largely due to holiday travel. So long as great numbers of people disregard the appeals made and the warnings given by the Government, it will not be practicable to ensure that passengers engaged on urgent business of National importance, whether servicemen or civilians, will be able to travel on any particular train. I would remind Sir H. Morris-Jones, however, that arrangements are in force for the reservation at terminal stations of accommodation for duty parties of servicemen when the numbers are sufficient to fill one compartment.

Priority Railway Passengers

Sir Henry Morris-Jones (Denbigh—Lib.-Nat.) on July 13 asked the Parliamentary Secretary to the Ministry of War Transport whether he would institute a system of priority permits to those who had to travel on duty or on business or other *bona-fide* reason; and what provision he was making to enable Members of Parliament from the North-Western areas to reach their constituencies and to attend the House.

Mr. Noel-Baker in a written answer stated: I am afraid that, for the reasons which I have explained in answer to previous questions, it is not practicable to institute a system of priority permits for railway travel. I regret the inconvenience which Sir H. Morris-Jones and other Members have suffered. When, however, they are travelling between their constituencies and the House they can obtain sleeping berths on certain night trains and can reserve seats both at night and during the day from terminal stations on certain specified trains on which accommodation is reserved for priority passengers.

Special Trains for School Holidays

Mr. P. W. Jewson (Great Yarmouth—Lib.-Nat.) on July 19 asked the Parliamentary Secretary to the Ministry of War Transport what arrangements had been made to cope with the traffic arising from the closing of schools for the summer holidays at the end of July.

Mr. Noel-Baker: Schools have been asked to close for the summer holidays not later than July 28. The railway companies have been authorised to provide special trains on any day up to and including that date, in cases where the number of the pupils justifies a train and where there is not room for them in the ordinary services.

Railway Staffs' War Service

Lt.-Colonel Sir Thomas Moore (AyrBurghs—C.) on July 19 asked the Parliamentary Secretary to the Ministry of War Transport whether he had any plans in mind for demonstrating the admiration and gratitude of the British people to the railwaymen, including staffs and management, for their patriotism, courage and service during the war period.

Mr. Noel-Baker: The Minister of War Transport has publicly and repeatedly expressed his high appreciation of the magnificent way in which all railwaymen in every rank of their great service have responded to the severe demands made on them by the war, and I am sure that in so doing he was only voicing the general sentiment both of the country and of the House.

Sir T. Moore: As I have much more to say on this subject, I beg to give notice that I shall raise the matter on the Adjournment.

Questions by Railway Officials

Mr. A. Denville (Newcastle-upon-Tyne—C.) on July 19 asked the Parliamentary Secretary to the Ministry of War Transport whether it was on his instructions that ticket collectors and other railway officials asked travellers, not only their name and address, but what salary they were earning and where they were working, or what business they were managing; and if he would put an end to this practice.

Mr. Noel-Baker stated in a written answer: On the railways the London Passenger Transport Board travelling inspectors have for many years been instructed to put to passengers whom they suspect of defrauding the undertaking the questions to which Mr. Denville has drawn attention. I understand that the practice was originally instituted because magistrates frequently asked for this information when the defendant in a prosecution failed to appear in Court. After full consideration, I have asked the Board to stop it.

Women Employees at Stratford Sidings

Mr. W. Thorne (Plaistow—Lab.) on July 13 asked the Parliamentary Secretary to the Ministry of War Transport, if he was aware of the conditions in which the women employed on railway sidings had to work, and particularly the bad washing and lavatory conditions at the sidings at Stratford in the borough of West Ham; and, as these sidings were not covered by the Factories Act of 1937, what action he intended taking about the matter.

Mr. Noel-Baker stated in a written answer: Seventy-five women are employed in Stratford sidings, but not more than fifty of them are on duty at any one time. There are six wash basins with hot water and two lavatories. Instructions were recently given for six additional wash basins and one additional lavatory to be installed, and the work will be carried out as soon as possible.

Staffs at Crewe and Chester Stations

Sir Henry Morris-Jones (Denbigh—Lib.-Nat.) on July 13 asked the Parliamentary Secretary to the Ministry of War Transport whether he could state the number of people who travelled to and from Crewe and Chester stations, respectively, during the past week and the proportionate number of trains, excluding purely military trains, daily as compared with pre-war average; and the number of railway employees engaged at these two stations as compared with pre-war.

Mr. Noel-Baker in a written answer stated: The number of railway employees on Crewe Station in 1939 was 263; today it is 313. On Chester Station the number in 1939 was 172; now it is 176. I regret that the other information for which Sir H. Morris-Jones asks is not available.

Inland Water Transport

Mr. Ellis Smith (Stoke—Lab.) on July 19 asked the Parliamentary Secretary to the Ministry of War Transport if he would have a national survey made of all inland waterways, with a view to steps being taken to bring them to the highest state of efficiency, and the abandonment of canals where the cost of restoration or the economic conditions did not warrant their continued use.

Mr. Noel-Baker: The Government is closely examining the future organisation and development of the canals and other inland waterways of the country. The Government desires that means shall be found for making the maximum economic use of inland waterways, and that they shall have their proper place in the general system of inland transport. To this end, it has taken the opportunity afforded by wartime control to draw on the knowledge and experience available in the industry, and has consulted representatives of the canal undertakings and of canal carriers about the technical and other problems which must be considered in shaping future policy. Where necessary, it has also consulted, and will continue to consult, the planning authorities who are concerned. The Government is at present giving special attention to certain engineering projects for the improvement of waterways from the seaports to the Midlands. The Minister of War Transport is confident that everyone concerned will recognise the importance of co-operating in these enquiries, and will give him full help. He would be very happy to receive any views on the future of inland-water transport which traders and manufacturers may care to lay before him. I must, however, make it clear that the inquiries to which I have referred do not prejudge the Government's decisions on transport policy in general, and that they do not imply any commitment of the Government's financial expenditure.

Road Transport Arrangements

Mr. Ivor Thomas (Keighley—Lab.) on July 14 asked the Parliamentary Secretary to the Ministry of War Transport whether he was aware that bombed-out people were unable to move their furniture by road for distances in excess of 60 miles without obtaining a special permit from the Regional Transport Commissioner.

Mr. Noel-Baker: Yes, sir. I am grateful to Mr. Thomas for this opportunity of explaining some new arrangements which the Minister of War Transport has decided

to make. To help those whose homes have been damaged by enemy action, road transport, until further notice, may be used to move household furniture from premises which have been damaged by bombs to destinations which are more than 60 miles away, and this may be done without any special permit from the Regional Transport Commissioner. This concession will operate in London and in other areas of Southern England which have been affected by enemy action. It will apply to vehicles coming into an affected area to collect furniture, as well as to local vehicles.

Mr. Thomas thanked the Parliamentary Secretary for the useful concession he had announced, and asked whether it would come into operation immediately, as the success of the concession would depend on the quantity of petrol available, he asked if the Parliamentary Secretary would from time to time, and in the light of experience, consult with the Department responsible, about the petrol needs of operators.

Mr. Noel-Baker: Yes, sir. This comes into operation immediately, and petrol will be granted for this purpose.

Mr. T. Driberg (Maldon—Ind.): Will applications for additional petrol from road haulage contractors be dealt with as expeditiously as possible, because there is sometimes delay?

Mr. Noel-Baker: Yes, sir. I will see that arrangements are made.

Mr. R. J. Taylor (Morpeth—Lab.): Will any maximum prices be fixed so as to prevent exploitation of those who have been bombed out?

Mr. Noel-Baker: I do not think it is for my department to fix maximum prices, but, as a rule, road transport prices are fairly reasonable for this kind of work.

Workers' Bus Service

Mr. A. Denville (Newcastle-upon-Tyne—C.) on July 18 asked the Minister of Fuel & Power if he was considering the case submitted to him three years ago and repeated several times since of a large double-decker bus and two single buses used daily to take workers from the station to their office, bring them down to their lunch, take them back and take them down again at tea-time; and, as the distance was so small that on most days the buses were empty and that all residents walked this distance, would he now put a stop to this waste of fuel.

Mr. Noel-Baker: I have been asked to reply. Neither the Minister of Fuel & Power nor the Minister of War Transport can find any record of representations made by Mr. Denville about the bus services to which he now refers. These services, like others, provided for workers dispersed in other parts of the London area have been reviewed from time to time. I am satisfied that the services which still remain are required to meet a reasonable need. I shall be happy to furnish Mr. Denville with full particulars if he so desires.

Mr. Denville: Is the Parliamentary Secretary aware that school children aged from seven to nine walk this distance every day, and walk back for their meals, and that the residents do it also, and that three buses are doing this distance every day, carrying half-a-dozen people?

Mr. Noel-Baker: The version of the facts I have received from the Regional Transport Commissioner differs in many particulars from that given by Mr. Denville. Many of these people are railway staff over retirement age, many of them are in ill-health, and I am afraid that without these facilities their services could not be retained.

Sir Frank Sanderson (Ealing—C.): Is the Parliamentary Secretary aware that had he not provided the necessary facilities he would have been reprimanded?

There was no reply.

Notes and News

Railway Earnings in South Africa.—Railway earnings in South Africa for the period June 11 to July 8 amounted to £3,537,482, compared with £3,524,561 in the corresponding period of last year.

"Quality Control" Exhibition.—The Ministry of Production has opened in Birmingham an exhibition of engineering inspection equipment and methods to illustrate "quality control." It is the first exhibition of its kind in the country, and probably in the world, and contains £25,000 worth of the latest inspection appliances.

Railwaymen's Flag Day.—To-day (July 28) is the annual flag day of the Railway Benevolent Institution. It is organised by each of the four main-line railway companies in turn, and the proceeds go to help aged and disabled railwaymen and their dependents, as well as the Railway Orphanage at Derby. The organisation this year is by the Great Western Railway, throughout the whole of which system collections are being made.

Tilling Motor Services Limited—Profit for the year to June 30, 1944, amounted to £355,386, and the balance brought forward was £16,396, making a total of £371,782 available for distribution. Preference share capital is £100,000 in 10 per cent. cumulative preference shares of 10s. each, and the dividend thereon for the year is 10 per cent. less tax. On the ordinary capital of £2,000,000 in shares of 10s. each the dividend for the year is 7½ per cent., tax free. A transfer of £25,000 is made to general reserve fund, and £36,782 is carried forward.

Euston-Glasgow Accident Report.—The unsatisfactory subsoil below the permanent way and failure to impose a temporary speed restriction after excessive maintenance work the previous day, resulted in the derailment of the 8.40 p.m. Euston-Glasgow L.M.S.R. express at Mossband, near Gretna Junction, on May 15, states Colonel A. C. Trench, in a report on the accident submitted to the Ministry of War Transport. Three passengers in the leading coach, which was telescoped, were killed and nine others were injured. The track in the vicinity of Mossband was on a wet and greasy clay subsoil with a boggy foundation. The clay had been working up through the ballast and maintenance had needed constant attention. Colonel Trench suggests that the remedy is to raise the track through the soft dip.

Public Transport Association—It was reported at the second annual general meeting of the Public Transport Association, held on July 14 that, during the period from June 22 to December 31, 1943, no little part of the work of the association was concerned with building up the membership which at December 31 last, stood at a total of 385, comprising: 109 company operators, 24 municipal operators, 138 contractors, 2 extra-ordinary members, 105 associate members, and 7 overseas members. The total of vehicles owned by these was 40,927, and the association thus has become the largest passenger road transport organisation in this country. The income in the period was £2,166 and the expenditure £2,132, leaving a credit balance of £34. In many instances the association has taken action jointly with one or more of the Municipal Passenger Transport Association, Associated Road Operators Limited, the Commercial Motor Users Association, and the Society of Motor Manufacturers & Traders. This co-operation has enabled the passenger road transport industry to put forward its views to Government Departments with a single voice.

Robert Stephenson & Hawthorns Limited.—In the report for the year 1943 there is shown a balance, after charging depreciation and reserves for contingencies and taxation, of £21,043. Adding rents and transfer fees, and deducting directors' fees, etc., leaves £19,454, to which is added £3,831 brought forward, making £23,285.

British and Irish Railway Stocks and Shares

Stocks	Highest 1943	Lowest 1943	Prices July 25, 1944	Rise/Fall
G.W.R.				
Cons. Ord. ...	65½	57½	61½	—
5% Con. Pref. ...	120½	108	119½	—
5% Red. Pref. (1950)	110½	106	105	—
5% Rt. Charge ...	137½	123½	131½	—
5% Cons. Guar. ...	135½	121 7/8	131½	—
4% Deb.	118	107½	114½	—
4½% Deb.	119	109 7/8	115½	—
4½% Deb.	124½	116	120½	—
5% Deb.	138	127	134½	—
2½% Deb.	77	72½	74½	—
L.M.S.R.				
Ord.	34 1/8	28	31½	—
4% Pref. (1923) ...	66½	58	61	—
4% Pref.	80½	73	79	—
5% Red. Pref. (1955)	105½	102	103½	—
4% Guar.	107	98½	102½	— 1
4% Deb.	109½	103½	105½	— ½
5% Red. Deb. (1952	111½	108	109½	—
L.N.E.R.				
5% Pref. Ord. ...	12 1/8	7½	8⅞	— ½
Def. Ord.	5⅜	3⅜	4⅜	—
4% First Pref. ...	66½	57½	61	—
4% Second Pref. ...	36½	30½	33½	—
5% Red. Pref. (1955)	99⅜	93	100½	—
4% First Guar. ...	102½	94	100	— ½
4% Second Guar. ...	93½	85⅜	92	—
3% Deb.	86⅜	78⅜	82½	— ½
4% Deb.	109 7/8	101⅜	104½	— ½
5% Red. Deb. (1947)	106½	102	103	—
4½% Sinking Fund Red. Deb.	108	103½	105½	—
SOUTHERN				
Pref. Ord.	80	72½	78	—
Def. Ord.	26⅜	20⅜	25½	—
5% Pref.	119½	106⅜	118½	—
5% Red. Pref. (1964)	114	108½	114½	—
5% Guar. Pref. ...	136	122	131½	—
5% Red. Guar. Pref. (1957)	117	109½	114½	—
4% Deb.	117½	106	112½	—
5% Deb.	137	126	134	—
4% Red. Deb. (1962-67)	112	106½	109½	—
4% Red. Deb. (1970-80)	112	107	109½	—
FORTH BRIDGE				
4% Deb.	109	104⅜	104	—
4% Guar.	105	102½	102½	—
L.P.T.B.				
4½% "A"	125 11/16	114	121½	—
5% "A"	133 7/8	123	130½	—
3% Guar. (1967-72) ...	100½	97	99	—
5% "B"	124	114	121½	—
"C"	72	53	72	—
MERSEY				
Ord.	34½	27	33½	—
3% Perp. Pref. ...	68	59½	69	—
4% Perp. Deb. ...	104	102½	103	—
3% Perp. Deb. ...	83	78½	79	—
IRELAND* BELFAST & C.D.				
Ord.	9	6	9½	—
G. NORTHERN				
Ord.	24½	16	26⅜	— 7/8
Pref.	—	—	44½	+ 7/8
Guar.	—	—	68	—
Deb.	—	—	87	+ 1
G. SOUTHERN				
Ord.	30	9½	55½	— ½
Pref.	30	11	56	— ½
Guar.	64	26½	73½	+ ½
Deb.	88½	51⅜	95½	+ 1

* Latest available quotations

The dividend for the year is 5 per cent., less tax (same), and £5,000 (same) is transferred to general reserve, leaving £4,535 to be carried forward.

More Shelters for London Bus Queues —Eighty more queue-shelters are to be installed at busy traffic points in the London area, and it is hoped to provide a further 150 before next winter. At present there are 570 roadside queue-shelters along London Transport bus, tram, and trolleybus routes.

B.E.T. Omnibus Services Limited.—As shown in the accounts for the year ended June 30, 1944, the income from investments and other revenues amounted to £304,313, and the net profit was £150,693, compared with £148,598 a year ago. Adding £13,598 brought forward makes a total available sum of £164,291. On the cumulative preference shares the total dividend for the year is 10 per cent., less tax, and on the ordinary shares it is 6½ per cent., free of tax. These distributions are at the same rates as those which were paid a year ago. The balance to be carried forward is £29,291. The liquidation of Tilling & British Automobile Traction Limited has been completed and the final cash distribution received from the joint liquidators since June 30, 1943, has been applied in reduction of the cost of the company's investments.

Glyn, Mills & Company.—The 120th statement of assets and liabilities as at June 30, 1944, of this well-established banking business shows a satisfactory position. Total assets are £67,350,193, as against £60,008,045 at June 30, 1943. In the present assets are included £6,179,184 (£5,359,518) in coin, bank notes and balance at Bank of England; £4,263,468 (£2,907,766) balances with, and cheques in course of collection on, other banks in the United Kingdom; £9,006,700 (£7,806,700) money at call and short notice; bills discounted £1,805,500 (£1,158,235); Treasury deposit receipts £7,500,000 (£5,500,000); and investments £19,722,708 (£21,135,985), including £19,165,112 (£20,559,373) in British Government securities. These items together represent 80·79 per cent. of the deposits of £59,878,631. These deposits are unusually high, but this is accounted for very largely by a figure of about £4,800,000 due to certain exceptional capital transactions which have their effect on this particular date. On the other side the increase is reflected in the liquid assets. It will be noticed that Treasury deposit receipts have increased by £2,000,000 in comparison with a year ago. Advances to customers, etc., are £12,649,449, as against £9,840,732 at June 30, 1943.

Entre Rios Railways Co. Ltd.—The directors have decided to pay on August 16 the arrears of interest for the six months ended March 31, 1944, on the 4 per cent. debenture stock together with the 5 per cent. per annum interest on such arrears, the total amounting to £2 0s. 9d. per cent., less income tax.

Entre Rios Railways Debenture Scheme.—At meetings held on July 20, the holders of 4 per cent. debenture stock and 5 per cent. debenture stock in the Entre Rios Railways Co. Ltd. sanctioned the scheme of arrangement for renewal of the interest moratorium. The meeting of the holders of 5 per cent. debentures had to be adjourned to August 10 as the requisite quorum was not present.

Guest, Keen & Nettlefolds Limited.—Preliminary figures for the year to March 31, 1944, show that after charging debenture interest and redemption amounting to £93,302, depreciation £300,000, and taxation, profits were £965,028 (£904,000), and the amount brought in was £495,458. Transfers are made of £13,500 for war damage insurance; of £50,000 to war contingencies account, including deferred repairs, and of £150,000 to general reserve account, which has also received £45,233 arising from debenture redemption. General reserve account has also been credited with £250,000 surplus taxation provision over the 4 years to March 31, 1943. The dividend on the ordinary stock for the year is 10 per cent. less tax (same) and £629,554 is to be carried forward.

Improved Lighting of Wagon Works.—A scheme for the relighting of the Gloucester Railway Carriage & Wagon Co. Ltd. works recently has been carried out with highly satisfactory results. John Newth Limited was responsible for the electrical installation. Mazda 500-watt lamps in Mazdalux L.T. type dispersive reflectors are used throughout. The mounting height is 15 ft. above floor level, the spacing 19 ft. by 16 ft. 6 in. staggered, and the average illumination 11 ft.-candles. The better lighting obtained with the new scheme in operation may be judged by comparing the two illustrations below, which show the machine shop lighted respectively by the old and by the new method.

I.C.I. Research Fellowships.—The directors of Imperial Chemical Industries Limited have offered to provide, at nine universities in Great Britain, fellowships to be held by senior workers in certain sciences. The scheme is intended to operate for an initial period of seven years. The fellowships will be of the average value of £600 a year, although the universities will have power to determine the emolument for each particular appointment. The directors of I.C.I. have described on broad lines the subjects in which the fellowships are to be held, and the administration of the scheme is to rest wholly with the universities, which are to select and appoint the fellows subject only to their own conditions. The purpose is to strengthen the general provision in the British universities for scientific teaching and research, on the grounds that academic and industrial research are interdependent and complementary, and that substantial advances in industry cannot be looked for without corresponding advances in academic science. The offer has been made to the larger metropolitan universities and those which have a close geographical relation to the main centres of the company's production. Twelve fellowships have been offered to the Universities of Oxford, Cambridge, and London; eight to the Universities of Glasgow, Edinburgh, Manchester, Birmingham, and Liverpool; and four to the University of Durham.

Contracts and Tenders

Below is given a list of orders placed recently by the Egyptian State Railways:—

International General Electric Co. of New York Ltd.: Armature coils, gen-porcelain spools.

Silvertown Lubricants Limited: Grease.

W. T. Henley's Telegraph Works Co. Ltd. Switchboard cable.

British Insulated Cables Limited: Switchboard Cable.

Rivet, Bolt & Nut Co. Ltd.: Bolts and nuts.

Charles Richards & Sons Ltd.: Bolts and nuts.

Elliott Brothers (London) Limited: Contacts.

I.C.I. Metals Limited: Rolled plates, copper.

Brown Bayley's Steel Works Limited: Staybolt steel.

Samuel Osborn & Co. Ltd.: Staybolt steel.

The old lighting installation

The new Mazda installation

IMPROVED LIGHTING OF WAGON WORKS—(See accompanying paragraph)

Railway Stock Market

Buoyed up by the war news, stock markets have been strong, with rising prices again most marked in industrial shares favoured on post-war prospects, although many other sections showed further gains, despite profit-taking coming more into evidence. Confidence was also indicated by firmness and a rising tendency again shown by British Funds. Home rails continued unaffected by the surrounding strength of markets, and prices showed only small movements. Moreover, the tendency in Argentine rails was generally easier, although the rather lower prices were again attributed mainly to the small demand; selling was only moderate. Elsewhere, Antofagasta preference held their rise on the railway's better outlook. Canadian Pacifics, however, did not fully maintain their recent strength, although the market remains very hopeful that resumption of interim dividend payments is likely to be announced next month. Indian buying was reflected by higher quotations for some Indian railway stocks. In other directions, San Paulo were better, and United of Havana issues showed a small improvement.

Although home rails have been a disappointing market in recent months, the view is gaining ground that the large yields offered are bound sooner or later to attract attention, having regard to the small yields now ruling in the industrial and most other sections of markets. Yields on home rail juniors range from 7¼ per cent. on Great Western ordinary to over 8 per cent. on L.N.E.R. second preference. The return on Southern deferred is 8 per cent. and that on L.M.S.R. ordinary slightly below this rate. Moreover, yields offered by L.N.E.R. first preference, L.M.S.R. senior and 1923 preferences are also generous when judged in relation to their investment merits.

With market attention centred on current views of post-war dividend prospects when E.P.T. is abolished, it is perhaps surprising that more attention is not being given to the position as to the home railway dividend outlook. The railway agreement is scheduled to run until at least one year after the termination of the war. This may very well refer to the defeat of Japan as well as Germany. Indeed, according to some views, it may not be found practicable for the wartime fixed rental to be abolished until there is final agreement as to the status of the railways as to post-war transport organisation and control. At all events it would seem that the main-line railways are assured of dividends on their junior stocks at around current levels during the difficult period of the change-over from war to peacetime working. Moreover, it can be taken for granted that the case for fair and equitable treatment of the railways and their stockholders will be strongly presented. The statement that the large profits made by the Government as a result of the railway agreement are not to be subject to any refund to the railways on the same basis as a post-war refund of excess profit tax, has not influenced sentiment as to railway stocks, as such a refund was not generally expected.

There is, however, every reason to expect that the railways will in fairness receive adequate provision in respect of repairs, deferred maintenance, etc., although some of the clauses in the agreement will presumably become a matter of negotiation later on.

Compared with a week ago, Great Western ordinary eased from 61¾ to 61½, L.M.S.R. ordinary from 31½ to 31¼, Southern deferred from 25⅛ to 25, and the preferred was slightly lower at 77½. L.N.E.R. second preference at 33½ was unchanged on balance, although the first preference lost half a point at 60⅛.

L.M.S.R. first preference was 79, and the 1923 preference 60⅛, and London Transport "C" was 71½. Among Argentine stocks, B.A. Gt. Southern ordinary eased from 11⅜ to 11¼, B.A. Western was 10½ and Central Argentine 8, and, where changed, preference and debenture stocks were slightly below the levels of a week ago. Antofagasta preference held its rise to 44, San Paulo ordinary was better at 48, as were United of Havana 1906 debentures at 29. Canadian Pacifics eased from 17½ to 17.

Traffic Table and Stock Prices of Overseas and Foreign Railways

	Railways	Miles open	Week ending	Traffic for week: Total this year	Traffic for week: Inc. or dec. compared with 1942/3	No. of Weeks	Aggregate traffics to date: Totals 1943/4	Aggregate traffics to date: Totals 1942/3	Aggregate traffics to date: Increase or decrease	Shares or stock	Prices: Highest 1943	Prices: Lowest 1943	Prices: July 25, 1944	Prices: Yield %
South & Central America	Antofagasta (Chili) & Bolivia	834	16.7.44	£ 39,110	+ £ 4,910	23	£ 833 010	£ 789,590	+ £ 43,420	Ord. Stk.	15¾	10	10⅜	Nil
	Argentine North Eastern ...	753	15.7.44	16,008	+ 1,644	2	32,910	31 884	+ 1,026	,,	7⅜	5	4½	Nil
	Bolivar	174	June, 1944	5,238	+ 370	26	31,756	32,414	− 658	6 p.c. Deb.	22½	18	17½	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds	23½	19	17½	Nil
	Buenos Ayres & Pacific ...	2,807	15.7.44	110,100	+ 25,500	2	221,760	195,900	+ 25,860	Ord. Stk.	8¼	5½	5½	Nil
	Buenos Ayres Great Southern	5,080	15.7.44	164,400	+ 32,100	2	336,600	330,240	+ 6,360	Ord. Stk.	17⅛	9¼	10⅜	Nil
	Buenos Ayres Western ...	1,930	15.7.44	63,660	+ 17,880	2	126,420	110,580	+ 15,840	,,	16	9⅞	10⅛	Nil
	Central Argentine	3,700	15.7.44	169,002	+ 48,090	2	356,553	272,739	+ 83,814	,,	10¾	6½	8	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	4¾	3	3½	Nil
	Cent. Uruguay of M. Video	972	8.7.44	16,599	+ 4.709	1	39,777	44,098	− 4,321	Ord. Stk.	7⅛	4¼	4½	Nil
	Costa Rica	262	May, 1944	26,525	+ 3,664	43	251,679	173 827	+ 77,852	Stk.	16	12½	14½	Nil
	Dorada	70	June, 1944	26,226	+ 3,993	26	149,309	120,492	+ 28,817	1 Mt. Db.	96	92	96	6¼
	Entre Rios	808	15.7.44	22,194	+ 3,570	2	45,834	43,152	+ 2,682	Ord. Stk.	9	5¼	4½	Nil
	Great Western of Brazil ...	1,030	15.7.44	19,700	+ 4,600	28	617,600	442,100	+ 175,500	Ord. Sh.	59/9	24/4½	30/-	Nil
	International of Cl. Amer. ...	794	Apr., 1944	$651,727	+ $8.267	16	$2,985,369	$2,665,812	+ $319,557	—	—	—	—	—
	Interoceanic of Mexico ...	—	—	—	—	—	—	—	—	1st Pref.	2⅛	1⅛	¼	Nil
	La Guaira & Caracas... ...	22¼	June, 1944	8,277	+ 82	26	46,430	53,590	− 7,160	5 p.c. Deb.	90	80	79	6¼
	Leopoldina	1,918	15.7.44	43,2 11	+ 4,668	28	1,267,921	939,154	+ 328,767	Ord. Stk.	7⅛	4	4½	Nil
	Mexican	483	7.7.44	ps. 476,000	+ ps. 77,500	1	ps. 476,000	ps. 398,500	+ ps. 77,500	Ord. Stk.	1⅜	⅜	⅜	Nil
	Midland Uruguay	319	May, 1944	15,947	− 648	48	187,586	169,543	+ 18,043	—	—	—	—	—
	Nitrate	382	15.7.44	6,415	− 674	28	98,921	78,182	+ 20,739	Ord. Sh.	83/9	71/3	73/6	£3 8
	Paraguay Central	274	7.7.44	—	+ —	1	$57,074	$15,610	+ $41,464	Pr. Li. Stk.	75	51½	71	8
	Peruvian Corporation ...	1,059	June, 1944	121,351	+ 16,617	52	1,330,647	1,045,065	+ 285,582	Pref.	17⅛	10⅜	10⅛	Nil
	Salvador	100	Apr., 1944	c 152,000	+ c 30,000	43	c 1,310,000	c 1,034,000	+ c 276,000	—	—	—	—	—
	San Paulo	153¼	—	—	—	—	—	—	—	Ord. Stk.	71	57	49	£4 1
	Taltal	160	June, 1944	5,530	+ 2,925	52	65,330	48,811	+ 16 519	Ord. Sh.	37/6	20/-	18/3	Nil
	United of Havana	1,301	15.7.44	46,937	− 3,705	2	97,358	124,891	− 27,533	Ord. Stk.,	8⅝	3½	3	Nil
	Uruguay Northern	73	May, 1944	1,581	− 131	48	16,314	15,817	+ 497	—	—	—	—	—
Canada	Canadian Pacific	17,034	14.7.44	1,208,400	+ 23,800	28	33.331,600	29,580,000	+ 3,751,600	Ord. Stk.	18	13⅛	17⅛	1¼
India†	Barsi Light	202	May, 1944	23,250	+ 4,058	9	51,682	45,240	+ 6,442	—	—	—	—	—
	Bengal-Nagpur	3,267	May, 1944	1,008,600	− 120,600	9	2,094,450	2,177,850	− 83,400	Ord. Stk.	104½	101¼	110¼	3¼
	Madras & Southern Mahratta	2,939	Mar., 1944	358,125	− 7,925	52	10,447,866	8,913,942	+ 1,533,924	—	—	—	—	—
	South Indian	2,349	20.12.43	199,410	+ 24,449	37	5,321,558	4,562,445	+ 750,113	—	—	—	—	—
Various	Egyptian Delta	607	31.5.44	19,629	+ 4,960	9	114,384	84,476	+ 29,908	Prf. Sh.	6 1/16	2⅝	4	Nil
	Manila	—	—	—	—	—	—	—	—	B. Deb.	45	32	48	Nil
	Midland of W. Australia ...	277	May, 1944	21,833	− 12.686	48	312,986	355,514	− 42,528	Inc. Deb.	101	93	100½	£4 19
	Nigerian	1,900	29.4.44	276,142	− 43,758	4	276,142	319,900	− 43,758	—	—	—	—	—
	South Africa	13,291	10.6.44	843,199	+ 7,292	9	8,624,126	8,173,327	+ 450,799	—	—	—	—	—
	Victoria	4,774	March, 1944	1,363,928	− 222,955	—	—	—	—	—	—	—	—	—

Note. Yields are based on the approximate current price and are within a fraction of ⅛. Argentine traffics are given in sterling calculated @ 16⅜ pesos to the £

† Receipts are calculated @ 1s. 6d. to the rupee